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Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards for the Industrial Waste Combustor Subcategory of the Waste Combustors Point Source Category; Proposed Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 444

[FRL–5931–6]

RIN 2040–AD03

Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards for the Industrial Waste Combustor Subcategory of the Waste Combustors Point Source Category

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: This proposal represents the Agency's first effort to develop Clean Water Act (CWA) national effluent limitations guidelines and standards for wastewater discharges from commercially-operating hazardous waste combustor facilities regulated as ''incinerators'' or ''boilers and industrial furnaces'' under the Resource Conservation and Recovery Act (RCRA) as well as commercially-operating non-hazardous industrial waste combustor facilities. The proposal would not apply to sewage sludge incinerators, medical waste incinerators, municipal waste combustors or other solid waste combustion units. Sources of wastewater that would be regulated under the proposal include flue gas quench, slag quench, and air pollution control wastewater.

This proposal would limit the discharge of pollutants into navigable waters of the United States and the introduction of pollutants into publicly-owned treatment works (POTWs) by existing and new stand-alone industrial waste combustors that incinerate waste received from offsite. The proposal would not apply to wastewater discharges from industrial waste combustors that only burn wastes generated on-site at an industrial facility or generated at facilities under common corporate ownership.

Compliance with this proposed regulation is estimated to reduce the discharge of pollutants by at least 230,000 pounds per year and to cost an estimated $2.16 million annualized (post-tax $1996).

DATES: Comments on the proposal must be received by May 7, 1998.

In addition, EPA will conduct a workshop and public hearing on the pretreatment standards of the rule on February 26, 1998 from 10:00 am to 1:00 pm.

ADDRESSES: Send written comments and supporting data on this proposal to: Ms. Samantha Hopkins, US EPA, (4303), 401 M Street SW, Washington, DC 20460. Please submit an original and two copies of your comments and enclosures (including references). See Section IX of **SUPPLEMENTARY INFORMATION** for further instructions.

Commenters who want EPA to acknowledge receipt of their comments should enclose a self-addressed, stamped envelope. No facsimiles (faxes) will be accepted. Comments and data will also be accepted on disks in WordPerfect format or ASCII file format.

Comments may also be filed electronically to ''hopkins.samantha@epamail.epa.gov''. Electronic comments must be submitted as an ASCII or WordPerfect file avoiding the use of special characters and any form of encryption. Electronic comments must be identified by the docket number W–97–08 and may be filed online at many Federal Depository Libraries. No confidential business information (CBI) should be sent via e-mail.

The public record is available for review in the EPA Water Docket, 401 M Street SW, Washington, D.C. 20460. The record for this rulemaking has been established under docket number W–97–08, and includes supporting documentation, but does not include any information claimed as Confidential Business Information (CBI). The record is available for inspection from 9:00 am to 4:00 pm, Monday through Friday, excluding legal holidays. For access to docket materials, please call (202) 260–3027 to schedule an appointment.

The workshop and public hearing covering the rulemaking will be held at the EPA headquarters auditorium, Waterfront Mall, 401 M St. SW, Washington, DC. Persons wishing to present formal comments at the public hearing should have a written copy for submittal.

FOR FURTHER INFORMATION CONTACT:

For additional technical information contact Ms. Samantha Hopkins at (202) 260–7149. For additional economic information contact Mr. William Anderson at (202) 260–5131.

SUPPLEMENTARY INFORMATION:

Regulated Entities: Entities potentially regulated by this action include:

Category	Examples of regulated entities
Industry	Incinerators regulated under RCRA (i.e. rotary kiln incinerators, liquid injection incinerators) that operate commercially
	Boilers and industrial furnaces (BIFs) regulated under RCRA (i.e. cement kilns, boilers, industrial furnaces) that operate commercially
	Industrial waste combustors that burn non-hazardous industrial waste and operate commercially.
Federal Govt.	Federal Agencies which burn industrial hazardous or non-hazardous waste and operate commercially (none identified).[1]

[1] No Federal Agencies which operate commercially were identified in the information collection activities for this regulation. However, Federal Agencies operating commercially would be covered by the proposed regulation.

The preceding table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. This table lists the types of entities that EPA is now aware could potentially be regulated by this action. Other types of entities not listed in the table could also be regulated. To determine whether your facility is regulated by this action, you should carefully examine the applicability criteria in § 444.02 of the proposed rule. If you have questions regarding the applicability of this action to a particular entity, consult one of the persons listed in the proceeding **FOR FURTHER INFORMATION CONTACT** section.

Supporting Documentation

The regulations proposed today are supported by several major documents:

1. ''Development Document for Proposed Effluent Limitations Guidelines and Standards for Industrial Waster Combustors'' (EPA 821–B–97–011). Hereafter referred to as the Technical Development Document, presents EPA's technical conclusions concerning the proposal. EPA describes, among other things, the data collection activities in support of the proposal, the wastewater treatment technology options, wastewater characterization, and the estimation of costs to the industry.

2. ''Economic Analysis and Cost-Effectiveness Analysis of Proposed Effluent Limitations Guidelines and Standards for Industrial Waste Combustors'' (EPA 821–B–97–010).

3. ''Statistical Support Document of Proposed Effluent Limitations Guidelines and Standards for Industrial Waste Combustors'' (EPA 821–B–97–008).

4. ''Environmental Assessment of Proposed Effluent Limitations Guidelines and Standards for Industrial Waste Combustors'' (EPA 821–B–97–009).

How To Obtain Supporting Documents

The Technical and Economic Development Documents can be obtained through EPA's Home Page of the Internet, located at www.EPA.gov/OST/rules. The document are also available from the Office of Water Resource Center, RC–4100, U.S. EPA, 401 M Street SW., Washington, D.C., 20460; telephone (202) 260–7786 for the voice mail publication request.

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Legal Authority: These regulations are being proposed under the authority of Sections 301, 304, 306, 307, 308, and 501 of the Clean Water Act, 33 U.S.C. 1311, 1314, 1316, 1317, 1318, and 1361.

I. Legal Authority for the Proposed Regulation

A. Clean Water Act

1. Overview of Clean Water Act

Congress adopted the Clean Water Act (CWA) to ''restore and maintain the chemical, physical, and biological integrity of the Nation's waters.'' Section 101(a), 33 U.S.C. 1251(a). To achieve this goal, the CWA prohibits the discharge of pollutants into navigable waters except in compliance with the statute. The Clean Water Act attacks the problem of water pollution on a number of different fronts. Its primary reliance, however, is on establishing restrictions on the types and amounts of pollutants discharged from various industrial, commercial, and public sources of wastewater.

Direct dischargers must comply with effluent limitations and new source performance standards. These limitations and standards are established by regulation for categories of industrial dischargers and are based on the degree of control that can be achieved using various levels of pollution control technology. Permits authorizing discharges issued under the National Pollutant Discharge Elimination System must require compliance with these limitations and standards (CWA Sections 301(b), 304(b), 306, 307(b)–(d), 33 U.S.C. 1311(b), 1314(b), 1316, and 1317(b)–(d)). In the absence of national effluent limitations and new source performance standards, EPA must establish ''best professional judgement'' limitations and standards on a case-by-case basis before it may issue an NPDES discharge permit.

Congress recognized that regulating only those sources that discharge effluent directly into the nation's waters would not be sufficient to achieve the CWA's goals. Consequently, the CWA requires EPA to promulgate nationally applicable pretreatment standards (for new and existing sources) which restrict pollutant discharges for those who discharge wastewater indirectly through sewers flowing to publicly-owned treatment works (POTWs) (Section 307 (b) and (c), 33 U.S.C. § 1317 (b) and (c)). National pretreatment standards are established for those pollutants in wastewater from indirect dischargers which may pass through or interfere with POTW operations. Generally, pretreatment standards are designed to ensure that wastewater from direct and indirect industrial dischargers are subject to similar levels of treatment. In addition, POTWs are required to implement local treatment limits applicable to their industrial indirect dischargers to satisfy any local requirements (40 CFR 403.5).

2. Statutory Requirements of Regulation

As noted above, the CWA requires EPA to establish effluent limitations guidelines, pretreatment standards for new and existing sources performance standards. These guidelines and standards are summarized below:

a. Best Practicable Control Technology Currently Available (BPT)—Sec. 304(b)(1) of the CWA

In the guidelines for a given industry category, EPA defines what are the BPT effluent limitations for conventional, priority, and non-conventional pollutants. In specifying BPT, EPA looks at a number of factors. EPA first

considers the cost of achieving effluent reductions in relation to the effluent reductions obtained. The Agency next considers: the age of the equipment and facilities, the processes employed and any required process changes, engineering aspects of the control technologies, non-water quality environmental impacts (including energy requirements), and such other factors as the Agency deems appropriate (CWA 304(b)(1)(B)). Traditionally, EPA established BPT effluent limitations based on the average of the best performances of facilities within the industry of various ages, sizes, processes or other common characteristics. Where, however, existing performance is uniformly inadequate, EPA may require higher levels of control than currently in place in an industrial category if the Agency determines that the technology can be practicably applied.

b. Best Conventional Pollutant Control Technology (BCT)—Sec. 304(b)(4) of the CWA

The 1977 amendments to the CWA required EPA to identify effluent reduction levels for conventional pollutants associated with BCT technology for discharges from existing industrial point sources beyond the effluent reductions achieved under BPT. In addition to other factors specified in Section 304(b)(4)(B), the CWA requires that EPA establish BCT limitations after consideration of a two part ''cost-reasonableness'' test. EPA explained its methodology for the development of BCT limitations in July 1986 (51 FR 24974).

Section 303(a)(4) designates the following as conventional pollutants: biochemical oxygen demand (BOD_5), total suspended solids (TSS), fecal coliform, pH, and any additional pollutants defined by the Administrator as conventional. The Administrator designated oil and grease as an additional conventional pollutant on July 30, 1979 (44 FR 44501).

c. Best Available Technology Economically Achievable (BAT)—Sec. 304(b)(2) of the CWA

In general, BAT effluent limitations guidelines represent the best economically achievable performance of plants in the industrial subcategory or category. The factors considered in assessing BAT include the cost of achieving BAT effluent reductions, the age of equipment and facilities involved, the process employed, potential process changes, and non-water quality environmental impacts, including energy requirements. The Agency retains considerable discretion in assigning the weight to be accorded these factors.

d. New Source Performance Standands (NSPS)—Sec. 306 of the CWA

NSPS reflect effluent reductions that are achievable based on the best available demonstrated treatment technology. New facilities have the opportunity to install the best and most efficient production processes and wastewater treatment technologies. As a result, NSPS should represent the most stringent controls attainable through the application of the best available control technology for all pollutants (i.e., conventional, nonconventional, and priority pollutants). In establishing NSPS, EPA is directed to take into consideration the cost of achieving the effluent reduction and any non-water quality environmental impact and energy requirements.

e. Pretreatment Standards for Existing Sources (PSES)—Sec. 307(b) of the CWA

PSES are designed to prevent the discharge of pollutants that pass-through, interfere-with, or are otherwise incompatible with the operation of publicly-owned treatment works (POTW), including interfering with sludge disposal methods at POTWs. Pretreatment standards are technology-based and analogous to BAT effluent limitations guidelines.

The General Pretreatment Regulations, which set forth the framework for the implementation of categorical pretreatment standard, are found at 40 CFR Part 403. Those regulations require POTWs to establish pretreatment standards to address local pass-through and establish pretreatment standards that apply to all non-domestic dischargers. See 52 FR 1586, January 14, 1987.

f. Pretreatment Standards for New Sources (PSNS)—Sec. 307(b) of the CWA

Like PSES, PSNS are designed to prevent the discharges of pollutants that pass-through, interfere-with, or are otherwise incompatible with the operation of POTWs. PSNS are to be issued at the same time as NSPS. New indirect dischargers have the opportunity to incorporate into their plants the best available demonstrated technologies. The Agency consider the same factors in promulgating PSNS as it considers in promulgating NSPS.

B. CWA Section 304(m) Requirements

Section 304(m) of the Act (33 U.S. 1314(m)), added by the Water Quality Act of 1987, requires EPA to establish schedules for (1) reviewing and revising existing effluent limitation guidelines and standards (''effluent guidelines''), and (2) promulgating new effluent guidelines On January 2, 1990, EPA published and Effluent Guidelines Plan (55 FR 80), that included schedules for developing new revised effluent guidelines for several industry categories. One of the industries for which the Agency established a schedule was the ''Hazardous Waste Treatment, Phase II'' Category. EPA subsequently changed the category name ''Hazardous Waste Treatment, Phase II'' to ''Landfills and Incinerators.''

Natural Resources Defense Council, Inc. (NRDC) and Public Citizen, Inc. challenged the Effluent Guidelines Plan in a suit filed in U.S. District Court for the District of Columbia *(NRDC et al.* v. *Reilly*. Civ. No. 89–2980). The district court entered a Consent Decree in this litigation on January 31, 1992. The Decree required, among other things, that EPA propose effluent guidelines for the ''Landfills and Incinerators'' category by December 1995 and take final action on these effluent guidelines by December 1997. On February 4, 1997, the court approved modifications to the Decree which revise the deadlines to November 1997 for proposal and November 1999 for final action. EPA provide notice of these modifications on February 26, 1997 at 62 FR 8726. Also, although ''Landfills and Incinerators'' is listed as a single entry in the Consent Decree schedule, EPA is publishing two separate rulemaking actions in the **Federal Register.**

II. Overview of the Industrial Waste Combustor Industry

Today's proposal represents the Agency's first attempt to develop national guidelines that would establish effluent limitations and pretreatment standards for new and existing discharges from a defined segment of facilities combusting wastes. EPA estimates that the regulation being proposed today would reduce the discharge of total suspended solids and metals from these facilities by at least 230,000 pounds per year. EPA performed an analysis of the water quality benefits that would be derived from this proposal and predicts the proposal would eliminate current excursions of aquatic life and/or human health toxic levels for three streams. EPA's model also projects that adoption of the proposal would result in reduction of sewage sludge contamination associated with discharges from Industrial Waste Combustor facilities at two of the three POTWs.

This summary section highlights the technology bases and other key aspects of the proposed rule. The technology descriptions in this section are presented in abbreviated form. More detailed descriptions are included in the Technical Development Document and Section VI.F. of this notice. Today's proposal presents the Agency's recommended regulatory approach as well as other options considered by EPA. The Agency's recommended approach as well as other options considered by EPA. The Agency's recommended approach for establishing discharge limitations is based on a detailed evaluation of the available data. As indicated below in the discussion of the specifics of the proposal, the Agency welcomes comment on all options and issues and encourages commenters to submit additional data during the comment period. Also, the Agency plans additional discussion with interested parties during the comment period to ensure that the Agency has the views of all parties and the best possible data upon which to base a decision for the final regulation. EPA's final regulation may be based upon any technologies, rationale or approaches that are described in this proposal and public comments, including any options considered but not selected for today's proposed regulation.

A. Summary of the Industrial Waste Combustor Industry

The universe of combustion facilities currently in operation in the United States is broad. These include municipal waste incinerators that burn household and other municipal trash and incinerators that burn hazardous wastes. Other types of incinerators include those that burn medical wastes exclusively and sewage sludge incinerators for incineration of POTWs' wastewater treatment residual sludge. In addition, some boilers and industrial furnaces (e.g., cement kilns) may burn waste materials for fuel.

While many industries began incinerating some of their wastes as early as the late 1950's, the current market for waste combustion (particularly combustion of hazardous wastes) is essentially a creature of the Resource Conservation and Recovery Act (RCRA) and EPA's resulting regulation of hazardous waste disposal. Among the major regulatory spurs to combustion of hazardous wastes have been the land-ban restrictions under the Hazardous and Solid Waste Amendments (HSWA) of 1984 and clean-up agreements for Superfund sites called ''Records of Decision'' (RODs).

Prior to the promulgation of EPA's Land Disposal Restrictions (LDRs) (40 CFR Part 268), hazardous waste generators were free to send untreated wastes directly to landfills. The LDRs mandated alternative treatment standards for wastes, known as Best Demonstrated Available Technologies (BDATs). Quite often, combustion was the stipulated BDAT. Future modifications to the LDRs may either increase or decrease the quantity of wastes directed to the combustion sector.

The LDRs have also influenced hazardous waste management under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. 9601, et seq.). The RODs set out the clean-up plan for contaminated sites under CERCLA. A key attribute to the RODs is the choice of remediation technology. Incineration is often a technology selected for remediation. While remediation efforts contribute a minority of the wastes managed by combustion, combustion has been used frequently on remediation projects. In addition, future congressional changes to CERCLA may affect remediation disposal volumes directed to the combustion sector.

The Agency proposed a draft Waste Minimization and Combustion Strategy in 1993 and 1994 to promote better combustion of hazardous waste and encourage reduced generation of wastes. The key projects under the broad umbrella of the strategy are: ''Revised Standards for Hazardous Waste Combustors'' 61 FR 17358, April 1996, the Waste Minimization National Plan completed in May 1995, and the ''RCRA Expanded Public Participation Rule'' 60 FR 63417, December 1995. Waste minimization will directly affect waste volumes sent to the combustion and all other waste management sectors.

In recent years, a number of contrary forces have contributed to a reduction in the volume of wastes being incinerated. Declines in waste volumes and disposal prices have been attributed to: waste minimization by waste generators, intense price competition driven by overcapacity, and changes in the competitive balance between cement kilns (and other commercial Boilers and Industrial Furnaces (BIFs)) and commercial incinerators. These trends have been offset by factors such as increased overall waste generation as part of general economic improvement, Industrial Waste Combustors consolidation, and reductions in onsite combustion. The Agency solicits information and data on the current size of the industry and trends related to the growth or decline in the need for the services provided by these facilities.

The segment of the universe of combustion units for which EPA is today proposing regulations includes all units which operate commercially and which use controlled flame combustion in the treatment or recovery of industrial waste. For example, industrial boilers, industrial furnaces, rotary kiln incinerators and liquid-injection incinerators are all types of units included in the Industrial Waste Combustor Industry.

Combustion or recovery operations at these facilities generate the following types of wastewater described more fully in Section VI.B.1.: air pollution control wastewater, flue gas quench wastewater, slag quench, truck/equipment wash water, container wash water, laboratory drain wastewater, and floor washings from process area. Typical non-wastewater by-products of combustion or recovery operations may include: slag or ash developed in the combustion unit itself, and emission particles collected using air pollution control systems. There are many different types of air pollution control systems in use by combustion units. The types employed by combustion units include, but are not limited to: packed towers (which use a caustic scrubbing solution for the removal of acid gases), baghouses (which remove particles and do not use any water), wet electrostatic precipitators (which remove particles using water but do not generate a wastewater stream), and venturi scrubbers (which remove particles using water and generate a wastewater stream). Thus, the amount of wastewater and types of wastewater generated by a combustion unit are directly dependent upon the types of air pollution control systems employed by the combustion unit.

B. Related Regulations

1. Hazardous Waste Combustion Regulation Proposed in 1996

Under the joint authority of the Clean Air Act (CAA) and the Resource Conservation Recovery Act (RCRA): EPA proposed the Revised Technical Standards for Hazardous Waste Combustion (HWC) Facilities (61 FR 17358, April 19, 1996). The proposed regulations would apply to the following types of combustors:

- RCRA Incinerators (as defined in 40 CFR 260.10)
- RCRA Cement Kilns and RCRA Lightweight Aggregate Kilns (as defined in 40 CFR 260.10)

The proposal would not apply to:

• RCRA Boilers and Industrial Furnaces (other than Cement Kilns and Aggregate Kilns, as defined in 40 CFR 260.10)

The proposed HWC regulation would establish stack emission limits for several hazardous air pollutants (HAPs). Under the Clean Air Act (CAA), these limits must require the maximum achievable degree of emission reductions of HAPs, taking into account the cost of achieving such reductions and non-air quality health and environmental impacts and energy requirements—so-called Maximum Achievable Control Technologies (MACT) standards. The HWC regulation would not set limits on the water effluents from the air pollution control systems (APCS) (like wet scrubbers, quench systems). The Agency identified revised emission limits based on updated data, which was published at 62 FR 24212, May 2, 1997. The Agency's current schedule calls for promulgation of this regulation in the third quarter of 1998. If the final regulation were promulgated as proposed, it is likely that some facilities using dry air pollution control, not presently generating Industrial Waste Combustor wastewater, may switch to using wet APCS. It is not anticipated that the universe of facilities that may be potentially subject to today's proposal will increase as a result of the promulgation of the HWC regulations.

2. Industrial Combustion Coordinated Rulemaking (ICCR)

EPA plans an Industrial Combustion Coordinated Rulemaking (ICCR) to develop recommendations for Federal air emission regulations that address various combustion source categories and pollutants. Regulations will be developed under sections 112 and 129 of the Clean Air Act, as well as section 111. The overall goal of the Industrial Combustion Coordinated Rulemaking is to develop recommendations for a unified set of Federal air regulations that will maximize environmental and public health compliance, within constraints of the Clean Air Act. The ICCR is expected to be proposed in October 1999 and promulgated in November 2000.

Under the CAA, the ICCR will potentially regulate air emissions from several categories of industrial combustion sources, including boilers, process heaters, waste incinerators, combustion turbines, and internal combustion engines. The ICCR will not cover combustion sources which burn hazardous waste. The combustion devices that will be covered by the ICCR are used pervasively for energy generation and waste disposal in a wide variety of industries and commercial and institutional establishments. They burn non-hazardous fuels including oil, coal, natural gas, wood, and other non-hazardous wastes. The industrial combustion regulations will affect thousands of sources nationwide. Only a small number of the facilities covered under the ICCR are also Industrial Waste Combustor facilities and thus potentially subject to today's proposal. Specifically, only ICCR facilities which operate commercially are potentially subject to today's proposal.

Because this regulation is not scheduled to go final until November 2000, EPA does not know what the final emission standards will be or on what technology they will be based. Consequently, EPA may need to reconsider its effluent limitations guidelines following promulgation of final ICCR rules.

C. Summary of Public Participation

During the data gathering activities that preceded development of the proposed rules, EPA met with or spoke to the following representatives from the industry: the Environmental Technology Council (formerly the Hazardous Waste Treatment Council), the National Solid Waste Management Association, and the Council of Industrial Boiler Owners.

EPA will assess all comments and data received at the public meeting prior to promulgation.

III. Summary and Scope of Proposed Regulation

EPA is proposing to establish discharge limitations and standards for wastewater discharges from those facilities which the proposed rule defines as an ''Industrial Waste Combuster facility.'' Industrial Waste Combustor facilities include commercial hazardous waste incinerators, boilers and industrial furnaces that burn waste for fuel and other commercial combustors burning industrial wastes. EPA is not including within the scope of the proposal industrial waste combustors that burn only wastes received from off-site facilities within the same corporate ownership (intracompany wastes) or industrial waste combustors that only burn wastes generated on-site. This summary section highlights the technology bases and other key aspects of the proposed rule. The technology descriptions in this section are presented in abbreviated form; more detailed descriptions are found in the Technical Development Document and Section VI.F. of today's notice.

The following summarizes today's proposal:

General Provisions

A. Scope of This Regulation

In today's notice, EPA is proposing effluent limitations guidelines and pretreatment standards for new and existing commercial facilities that are engaged in the combustion of industrial waste received from off-site facilities not under the same corporate ownership as the industrial waste combustor. The proposal would not apply to wastewater generated in burning wastes from intracompany transfers exclusively and/or from industrial processes on-site exclusively.

The proposed regulation today applies to the discharge of wastewater associated with the operation of the following:

• RCRA Incinerators (as defined in 40 CFR 260.10 and in the Definitions Section of this notice),

• RCRA Boiler and Industrial Furnaces (BIFs) (as defined in 40 CFR 260.10 and in the Definitions Section of this notice), and

• Non-hazardous commercial combustors.

As noted above, the proposal would not apply to wastewater discharges associated with combustion units that burn only wastes generated on-site. Furthermore, wastewater discharges from RCRA hazardous incinerators, RCRA BIFs, and non-hazardous combustors that burn waste generated off-site from facilities that are under the same corporate ownership (or effective control) as the combustor are similarly not included within the scope of this proposal. Facilities subject to the guidelines and standards would include commercial facilities whose operation is the combustion of off-site generated industrial waste as well as industrial or manufacturing combustors that burn waste received from off-site from facilities that are not within the same corporate structure. A further discussion of the types of combustion units to be covered under this regulation is included in the Technical Development Document and Section IV.A. of this notice.

As noted, facilities which only burn waste from off-site facilities under the same corporate structure (intracompany facility) and/or only burn waste generated on-site (captive facility) are not included in this proposal to be regulated under these guidelines. EPA has decided not to include these facilities within the scope of this regulation for the following reasons. First, based on its survey, EPA

identified (as of 1992) approximately 185 captive facilities and approximately 89 facilities that burn wastes received from other facilities within the same corporate umbrella.[1] A significant number of these facilities generated no Industrial Waste Combustor wastewater. EPA's data show that 73 captive facilities (39 percent) and 36 intracompany facilities (42 percent) generated no Industrial Waste Combustor wastewater. Second, EPA believes the wastewater generated by Industrial Waste Combustor operations at most of the captive and intracompany facilities that EPA has identified are already subject to national effluent limitations (or pretreatment standards) based on the manufacturing operations at the facility. Specifically, 140 of the 156 captive and intracompany facilities which received a screener survey and generated Industrial Waste Combustor wastewater as a result of their combustion operations: (1) Were either previously identified as subject to another effluent guidelines by EPA or (2) identified themselves as subject to another effluent guidelines. There are 97 facilities subject to the Organic Chemicals, Plastics and Synthetic Fibers category (40 CFR Part 414), 17 subject to the Pharmaceuticals category (40 CFR Part 439), 16 subject to the Steam Electric Power Generating category (40 CFR Part 423), 3 to the Pesticide Manufacturing category (40 CFR Part 455), and 7 to other categories. EPA could not identify an effluent guidelines category applicable to their discharges for 16 of these 156 facilities (five of these are federal facilities).

Also, 83 percent of all captive facilities and 73 percent of all intracompany facilities reported that the combustion unit wastewaters made up less than 20 percent of the final wastewater stream discharged from each facility. EPA concluded that, in these circumstances, it is likely that the Industrial Waste Combustor waste streams are being treated along with other categorical waste. Also, 71 percent of all captive facilities and 67 percent of all intracompany facilities reported that their IWC wastewater is covered as process wastewater under existing EPA effluent limitations (40 CFR Parts 405–471). This indicates that most Industrial Waste Combustor waste streams are subject either directly (where discharged separately) or when mixed with other wastes subject to national effluent guidelines (or pretreatment standards) comparable to those being considered here. Given these facts, EPA has concluded preliminarily that it should not include such captive or intracompany facilities within the scope of today's proposed action. However, EPA is requesting comment on its approach. The Agency is particularly eager for data concerning treatment of such waste streams at categorical and other facilities. The proposed effluent limitations guidelines and standards are intended to cover wastewater discharges resulting from combustion of, or recovery of components from, hazardous and non-hazardous industrial waste received from off-site facilities.

The Agency also solicits comment on including a *de minimis* quantity or percentage of off-site receipts in comparison to the total amount of waste burned at the facility for which facilities would not be considered in the scope of this regulation. Some manufacturing facilities may receive a few shipments of waste or off-specification products to be burned on site, but these facilities do not actively accept large quantities of waste from off-site for the purpose of combustion and disposal. In the 1994 Waste Treatment Industry Phase II: Incinerators Questionnaire, some Industrial Waste Combustor facilities were identified with intermittent shipments of waste. EPA is requesting information on the amounts of waste received and the reasons the waste were accepted to determine if a *de minimis* quantity should be established to limit the applicability of this rulemaking. At present, no *de minimis* quantity exemption has been established for this rulemaking. Facilities are included in the scope of this regulation regardless of the quantity received for treatment if they accept any waste for treatment from off-site.

B. Monitoring Requirements for Industrial Waste Combustors

EPA's regulations require that both direct and indirect discharges must monitor to establish compliance with their limitations and standards. Thus, EPA's NPDES permit regulations require that all the permits of all direct dischargers must include requirements to monitor according to EPA-approved test procedures each pollutant limited in the permit, the volume of effluent discharged from each outfall, other appropriate measurements such as pollutants such to notification requirements. *See* 40 CFR 122.44(i). EPA's pretreatment regulations similarly require indirect discharge to monitor to demonstrate compliance with pretreatment standards. See 40 CFR 403.12(g).

Limitations and Standards for Existing Industrial Waste Combustor Facilities

C. Proposed Effluent Limitations for Existing Industrial Waste Combustor Facilities That Discharge Wastewater to Navigable Waters

i. Best Practicable Control Technology Currently Available (BPT)

The Agency is proposing to establish BPT effluent limitations guidelines for the Industrial Waste Combustors to control conventional, priority, and non-conventional pollutants in the waste treatment effluent. Table III.C–1 is a summary of the technology basis for the proposed effluent limitations.

TABLE III.C–1.—TECHNOLOGY BASIS FOR BPT EFFLUENT LIMITATIONS

Proposed subpart	Technology basis
444	Primary Precipitation, Solid-Liquid Separation, Secondary Precipitation, Solid-Liquid Separation, and Sand Filtration.

The BPT limitations would be based upon two stages of chemical precipitation, each at different pH levels, each followed by some form of separation and sludge dewatering. The first stage of chemical precipitation is preceded by chromium reduction, when necessary. The different pH levels would be selected so as to optimize the removal of metals from the Industrial Waste Comubustor wastewater. The pollutants controlled and the points of application are described in Section VI of this notice.

ii. Best Conventional Pollutant Control Technology (BCT)

The EPA is proposing BCT effluent limitations guides for Total Suspended Solids (TSS) for the Industrial Waste Combustor Industry. The proposed BCT effluent limitations guidelines are equal to the proposed BPT limitations for TSS. The development of proposed BCT effluent limitations is further explained in Section VI of this notice.

iii. Best Available Technology Economically Achievable (BAT)

The Agency is proposing to set BAT effluent limitations guidelines for the Industrial Waste Combustor Industry. These proposed limitations are based on the same technologies proposed for BPT.

[1] As explained below, EPA conducted an extensive survey (with follow-up questionnaire), in part, to characterize the universe of facilities being considered for regulation. Following proposal, EPA plans to review its screener survey and questionnaire results in order to confirm the accuracy of its assignment of wastewater flows and facilities as captive, intra-company or commercial Industrial Waste Combustors.

D. Proposed Pretreatment Standards for Existing Industrial Waste Combustor Facilities That Discharge Wastewater into a POTW

Pretreatment Standards for Existing Sources (PSES)

For pollutants that pass-through or otherwise interfere with POTWs, EPA is proposing to set PSES similar to the proposed BPT/BAT effluent limitations for the Industrial Waste Combustors. Table III.D–1 is a summary of the technology basis for the proposed effluent limitations. PSES are further discussed in Section V of this notice.

TABLE III.D–1.—TECHNOLOGY BASIS FOR PSES EFFLUENT LIMITATIONS

Proposed subpart	Technology basis
444	Primary Precipitation, Solid-Liquid Separation, Secondary Precipitation and Solid-Liquid Separation.

Limitations and Standards for New Industrial Waste Combustor Facilities

E. Proposed Effluent Limitations for New Industrial Waste Combustor Facilities That Will Discharge Wastewater to Navigable Waters

New Source Performance Standards (NSPS)

EPA is proposing to set NSPS equivalent to the proposed BPT/BCT/BAT effluent limitations for the Industrial Waste Combustor Industry. NSPS are discussed in more detail in Section VI of this notice.

F. Proposed Pretreatment Standards for New Industrial Waste Combustor Facilities That Will Discharge Wastewater into a POTW

Pretreatment Standards for New Sources (PSNS)

For pollutants that pass-through or otherwise interfere with POTWs, EPA is proposing to set PSNS equivalent to the proposed PSES effluent limitations. PSNS are further discussed in Section VI of this notice.

IV. Detailed Description of Industrial Waste Combustors

A. Identified Industrial Waste Combustor Facilities

Presented below is a brief summary description of the Industrial Waste Combustor Industry, for which EPA is today proposing guidelines.

Based upon responses to EPA's 1994 Waste Treatment Industry Phase II: Incinerators Screener Survey and Questionnaire (see discussion below), the Agency estimates that there are approximately 84 commercial Industrial Waste Combustor facilities of the type for which EPA is proposing limitations and standards. These include both stand-alone combustion facilities as well as facilities which treat their own process residuals along with wastes received from off-site. Of these 84 facilities, 58 facilities do not generate any type of Industrial Waste Combustor wastewater (as defined in Section VI.B. of this notice.) Also, 13 of these facilities generate Industrial Waste Combustor wastewater but do not discharge the wastewater to a receiving stream or to a POTW. These facilities are considered ''zero or alternative dischargers'' and use a variety of methods to dispose of their wastewater. At these facilities, (1) wastewater is sent off-site for treatment or disposal (four facilities); (2) wastewater is burned or evaporated on site (five facilities); (3) wastewater is sent to a surface impoundment on site (three facilities); and (4) wastewater is injected underground on site (one facility). Thus, EPA has identified only 13 facilities that were discharging Industrial Waste Combustor wastewater to a receiving stream or introducing wastewater to a POTW in 1992. Of these 13 facilities, 2 facilities have, since 1992, either stopped accepting waste from off site for combustion or have closed their combustion operations. Eight of the 11 open facilities introduce their Industrial Waste Combustor wastewater to a receiving stream and 3 of the 11 facilities discharge their Industrial Waste Combustor wastewater to a POTW. These 11 facilities are found near the industries generating the wastes undergoing combustion.

As previously noted, Industrial Waste Combustor facilities accept a variety of different wastes for treatment. Typically, a combustor operator will request that the waste generators initially furnish profile information on the waste stream to be burned. After the combustion facility reviews the profile information of the waste, it determines a charge for treating the waste stream. If the waste generator accepts the cost of treatment, shipments of the waste stream to the combustion facility will begin. For each truck load of waste received for combustion, the combustion facility collects a sample from the shipment and analyzes the sample to determine if it matches the profile information. Specifically, the waste shipment is analyzed to characterize the level of pollutants in the sample as well as the energy content of the sample. If the sample matches the profile information, the shipment of waste will be burned. If the sample does not match the profile information, the combustion facility will reevaluate the estimated cost of combustion for the shipment or decline the shipment for combustion.

The 11 open facilities identified by EPA operate a wide variety of combustion units. Four facilities operate rotary kilns and are hazardous waste incinerators regulated under RCRA. Three facilities operate liquid injection incinerators that are also incinerators regulated under RCRA. Three facilities operate furnaces that are regulated as BIFs under RCRA. One facility operates a liquid injection device that is also regulated as a BIF under RCRA. Finally, one facility operates a combustion device that is not subject to RCRA regulations as either a BIF or an incinerator.

The 11 open facilities identified by EPA use a wide variety of air pollution control systems. The types of air pollution control systems in use are: fabric filters, spray chamber scrubbers, packed tower scrubbers, ionizing wet scrubbers, venturi scrubbers, dry scrubbers, dry cyclones, and wet electrostatic precipitators. Ten of the 11 open facilities use more than one of the air pollution control systems listed above. Six of the eleven facilities use a combination of wet and dry air pollution control systems. Four of the eleven facilities use only wet air pollution control systems. The type of air pollution systems in use at two of the facilities is not known.

B. Wastewater Treatment Processes Used by Industrial Waste Combustors

As the Agency learned from data and information collected as a result of the 1994 Waste Treatment Industry Phase II: Incinerators Questionnaire, the commercial Industrial Waste Combustors for whose wastewater discharges EPA is today proposing effluent guidelines accept many types of hazardous and non-hazardous industrial waste for treatment in liquid or solid form. In 1992, these 11 commercial facilities accepted approximately 314,000 tons of industrial waste for combustion, of which 86 percent was hazardous and 14 percent was non-hazardous.

The wastewater generated by the different types of facilities is very similar. The majority of the wastewater by the 11 open Industrial Waste Combustor facilities is generated from air pollution control systems designed to capture stack emissions. Air pollution

control wastewater consists of primarily or inorganic pollutants and has very low concentrations of organic compounds because these are largely destroyed during combustion. The post-combustion streams that passes through the air pollution control system contain low levels of organics and consequently little ends up in the wastewater.

Nine of the 11 open Industrial Waste Combustor facilities employ some type of chemical precipitation to treat these organic pollutants in their wastewater. These facilities then send the treatment sludge to a RCRA Subtitle C or D landfill depending upon its content. Two of the remaining eleven only neutralize their air pollution control system wastewater before discharge.

The remaining facility does not generate air pollution control system wastewater. It uses filtration and adsorption as its wastewater treatment technology to treat the following wastewaters: floor washings from the Industrial Waste Combustor process area, truck/equipment wash water and container wash water.

EPA sampled wastewater at three facilities for five days. Of the three facilities sampled by EPA, only one facility generated and treated wastewater exclusively from its air pollution control system. It also did not treat other wastewater such as floor washwater, truck/equipment washwater or container wash water with its air pollution control system wastewater. The other two facilities generated wastewater streams other than air pollution control wastewater, but treated these other wastewater streams separately from the air pollution control wastewater. Because these other streams contain both organic and inorganic pollutants, these two facilities treated these other wastewaters using biological treatment. These biological treatment systems were not sampled by EPA because the volume of these other wastewater streams (floor washings or truck/equipment/container wash water) represented only a small percentage of the wastewater being treated in these systems. Thus, EPA has no sampling data for any wastewaters other than air pollution control wastewater and flue gas quench. And thus, the proposed regulations are based on data from facilities employing treatment technologies designed to reduce metals loadings. The proposed limits do not include limits on discharges of organic pollutants and do not regulate discharges associated with the other types of wastewater streams EPA identified at these sites. Permit writers would need to establish site-specific Best Professional Judgment (BPJ) limits to regulate facilities which do not generate any wastewater from air pollution control systems but which are discharging wastewater associated with the treatment of other Industrial Waste Combustor wastewater streams. If EPA obtains data on treatment of these other wastewater streams it will consider developing limits for these wastestreams in this rule. To this end, EPA is requesting commenters to provide sampling data on such treatment of these ancillary streams. Further, the Agency is requesting comments on whether it should subcategorize the industry based on the types of wastewater sources found at an Industrial Waste Combustor facility. Commenters should also submit data on specific wastewater technologies that may be appropriate for treating these wastewaters.

V. Summary of EPA Activities and Data Gathering Efforts

A. EPA's Initial Efforts To Develop a Guideline for the Industrial Waste Combustor Industry

In 1986, the Agency initiated a study of waste treatment facilities which receive waste from off-site for treatment, recovery, or disposal. The Agency looked at various segments of the waste management industry including combustors, centralized waste treatment facilities, landfills, fuel blending operations, and waste solidification/stabilization processes (Preliminary Data Summary for the Hazardous Waste Treatment Industry, EPA 440–1–89–100, September 1989).

Developemnt of effluent limitations guidelines and standards for the Industrial Waste Combustor Industry began in 1993. EPA originally looked at RCRA hazardous waste incinerators, RCRA boilers and industrial furnaces (BIFs), and non-hazardous combustion units that treat industrial waste. Sewage sludge incinerators, municipal waste incinerators, and medical waste incinerators were not included in the 1989 study or in the initial data collection effort in 1993. EPA limited this phase of the rulemaking to the development of regulations for Industrial Waste Combustors.

B. Wastewater Sampling Program

In the sampling program for the 1989 Hazardous Waste Treatment Industry Study, twelve families were sampled to characterize the wastes received and evaluate the on-site treatment technology performance at combustors, landfills, and hazardous waste treatment facilities. All of the facilities sampled had more than one on-site operation (e.g., combustion and landfill leachate generation). The data collected cannot be used for this project because the facilities mix wastestreams for treatment. The collected data provides information on the performance of mixed wastewater treatment systems. Waste characteristics and treatment technology performance for the combustor facilities cannot be differentiated from the characteristics and performance associated with treatment of the mixed streams.

Between 1993 and 1995, EPA visited 14 Industrial Waste Combustor facilities. Eight of the fourteen Industrial Waste Combustors EPA visited were captive facilities because captive facilities were still being considered for inclusion in the scope of the Industrial Waste Combustor regulation at the time of the site visits. During each visit, EPA gathered information on waste receipts, waste and wastewater treatment, and disposal practices. EPA also took one grab-sample of untreated Industrial Waste Combustor scrubber blowdown water at twelve of the fourteen facilities. EPA analyzed most of these grab-samples for over 450 analytes to identify pollutants at these facilities. The grab-samples from the twelve site visits allowed EPA to assess whether there was a significant difference in raw wastewater characteristics from a wide variety of combustion unit types. (Section IV.A. of today's notice describes the types of combustion units used by Industrial Waste Combustors.) EPA determined that the raw wastewater characteristics were similar for all types of combustion units both in types of pollutants found and the concentrations of the pollutants found. Specifically, organics, pesticides/herbicides, and dioxins/furans were generally only found, if at all, in low concentrations in the grab-samples. (See Section VI.D. for a thorough discussion of dioxins/furans found at 7 of the 12 Industrial Waste Combustor facilities sampled.) However, a variety of metal analytes were found in treatable concentrations in the grab-samples.

Based on these data and the responses to the 1994 Waste Treatment Industry Phase II: Incinerators Questionnaire, EPA selected three of the Industrial Waste Combustor facilities for the BPT/BAT sampling program to collect data to characterize discharges and the performance of selected treatment systems. Using data supplied by the facilities, EPA applied five criteria in initially selecting which facilities to sample. The criteria were based on whether the wastewater treatment system: (1) was effective in removing pollutants; (2) treated wastes received

from a variety of sources (solids as well as liquids), (3) employed either novel treatment technologies or applied traditional treatment technologies in a novel manner (4) applied waste management practicesthat increased the effectiveness of the treatment unit, and (5) discharged its treated wastewater under an NPDES permit. The other 11 facilities visited were not sampled because they did not meet these criteria. Eight of these 11 facilities visited did not operate commercially, and are thus no longer in the scope of the project.

During each sampling episode, wastewater treatment system influent and effluent streams were sampled. Samples also were taken an intermediate points to assess the performance of individual treatment units. This information is summarized in the Technical Development Document. In all sampling episodes, samples were analyzed for over 450 analytes to identify the pollutants at these facilities. Again, organic compounds, pesticides/herbicides, and dioxins/furans were generally only found in low concentrations in the composite daily samples, if they were found at all. Dioxin/furan analytes were not detected in the sampling episode used to establish BPT/BAT/PSES. However, dioxin/furan analytes were found in the two other sampling episodes (see discussion in Section VI.D. below.)

EPA completed the three sampling episodes for the Industrial Waste Combustor Industry from 1994 to 1995. Selection of facilities to be sampled was limited due to the small number of facilities in the scope of the project. Only nine of the operating facilities identified discharged their treated wastewater under an NPDES permit. Of these nine facilities, only five burned solid as well as liquid waste. Also, one of these five burned non-hazardous waste only. All of the facilities sampled used some form of precipitation for treatment of the metal-bearing waste streams. All of the facilities sampled were directed dischargers and were therefore designed to treat effectively the conventional pollutant found in this industry, TSS. Data from two of the facilities sampled could not be used to calculate the proposed limitations and standards in combination with the other facility because they did not employ the selected treatment technology. However, data from these facilities were used to characterize the raw waste streams. Thus, only one sampling episode contained data which were used to characterize the treatment technology performance of the Industrial Waste Combustors.

C. Waste Treatment Industry Phase II: Incinerators Screener Survey and Questionnaire

Under the authority of Section 308 of the Clean Water Act, EPA sent the Waste Treatment Industry Phase II: Incinerators 1992 Screener Survey (OMB Approval Number: 2040–0162, Expired: 08/31/96) in September 1993 to 606 facilities that the Agency had identified as possible Industrial Waste Combustor facilities. Since the Industrial Waste Combustor Industry was not represented by a SIC code at the time of the survey, identification of facilities was difficult. Directories of treatment facilities, Agency information, and telephone directories were used to identify the 606 facilities to which the questionnaires were mailed. The screener survey requested summary information on: (1) the types of wastes accepted for combustion; (2) the types of combustion units at a facility; (3) the quantity, treatment, and disposal of wastewater generated from combustion operations; (4) available analytical monitoring data on wastewater treatment; and (5) the degree of co-treatment (treatment of Industrial Waste Combustor wastewater with wastewater from other industrial operations at the facility). Information obtained by the Waste Treatment Industry Phase II: Incinerators 1992 screener survey is summarized in the Technical Development Document for today's proposed rule. The responses from 564 facilities indicated that 357 facilities burned industrial waste in 1992. The remaining 207 did not burn industrial waste in 1992. Of the 357 facilities that burned industrial waste, 142 did not generate any Industrial Waste Combustor wastewater as a result of their combustion operations. Of the remaining 215 facilities that generated Industrial Waste Combustor wastewater, 59 operated commercially, and 156 only burned wastes generated on-site, and/or only burned wastes generated from off-site facilities under the same corporate structure.

Following an analysis of the screener survey results, EPA sent the 1994 Waste Treatment Industry Phase II: Incinerators Questionnaire (OMB Approval Number: 2040–0167, Expired: 12/31/96) in March, 1994 to selected facilities which burned industrial waste and generated Industrial Waste Combustor wastewater. EPA sent the questionnaire to all 59 of the commercial facilities and all 16 of the non-commercial facilities that burned non-hazardous industrial waste. Further, EPA sent 32 of the remaining 140 non-commercial facilities a questionnaire. These thirty-two were selected based on a statistical random sample. The questionnaire specifically requested information on: (1) the type of wastes accepted for treatment; (2) the types of combustion units at a facility; (3) the types of air pollution control devices used to control emissions from the combustion units at a facility; (4) the quantity, treatment, and disposal of wastewater generated from combustion operations; (5) available analytical monitoring data on wastewater treatment; (6) the degree of co-treatment (treatment of Industrial Waste Combustor wastewater with wastewater from other industrial operations at the facility); and (7) the extent of wastewater recycling and/or reuse at the facility. Information was also obtained through follow-up telephone calls and written requests for clarification of questionnaire responses. Information obtained by the 1994 Waste Treatment Industry Phase II: Incinerators Questionnaire is summarized in the Technical Development Document for today's proposed rule.

D. Detailed Monitoring Questionnaire

EPA also requested a subset of Industrial Waste Combustor facilities that received a questionnaire to submit wastewater monitoring data in the form of individual data points rather than monthly or annual aggregates. Only facilities that had identified a sample point location where the stream was over 50 percent Industrial Waste Combustor wastewater received the Detailed Monitoring Questionnaire. These wastewater monitoring data included information on pollutant concentrations at various points in the wastewater treatment processes. Data were requested from 26 facilities. Sixteen of these facilities operated commercially and 10 operated non-commercially.

VI. Development of Effluent Limitations Guidelines and Standards

A. Industry Subcategorization

For today's proposal, EPA considered whether a single set of effluent limitations and standards should be established for this industry or whether different limitations and standards were appropriate for subcategories within the industry. In its preliminary decision that subcategorization is not required, EPA took into account all the information collected and developed with respect to the following factors: waste type received; type of combustion process; air pollution control used; nature of wastewater generated; facility size, age, and location; non-water

quality impact characteristics; and treatment technologies and costs. For most facilities in this industry, a wide variety of wastes are combusted. These facilities, however, employ the same wastewater treatment technologies regardless of the specific type of waste being combusted in a given day.

EPA concluded that a number of factors did not provide an appropriate basis for subcategorization. The Agency concluded that the age of a facility should not be a basis for subcategorization because many older facilities have unilaterally improved or modified their treatment process over time. Facility size is also not a useful technical basis for subcategorization for the Industrial Waste Combustor Industry because wastes can be burned to the same level regardless of the facility size and has no significant relation to the quality or character of the wastewaters generated or treatment performance. Likewise, facility location is not a good basis for subcategorization; no consistent differences in wastewater treatment performance or costs exist because of geographic location. Non-water quality characteristics (waste treatment residuals and air emission effects) did not constitute a basis for subcategorization. The environmental effects associated with disposal of waste treatment residual or the transport of potentially hazardous wastewater are a result of individual facility practices. The Agency did not identify any consistent basis for these decisions that would support subcategorization. Treatment costs to not appear to be a basis for subcategorization because costs will vary and are dependent on the following waste stream variables: flow rates, waste quality, waste energy content, and pollutant loadings. Therefore, treatment costs were not used as a factor in determining subcategories.

EPA identified three factors with significance for potentially subcategorizing the Industrial Waste Combustor Industry: the type of waste received for treatment, the type of air pollution control system used by a facility, and the types of Industrial Waste Combustor wastewater sources (e.g., container wash water vs. air pollution control water).

A review of untreated Industrial Waste Combustor air pollution control system wastewater showed that there is some difference in the concentration of pollutants between solid and liquid waste combustion units. In particular, for nine of the 27 metals analyzed at six Industrial Waste Combustor facilities, the average concentration of a particular metal was higher in the water from facilities that burned solids (as well as liquids) than in facilities that burned liquids only. EPA believes that this difference is probably the result of two factors: the type of air pollution control employed by the facilities and the amount of wastewater generated. Specifically, the data reviewed by EPA showed that two of the three facilities that burn liquid waste use dry scrubbing devices prior to using scrubbing devices which generate wastewater. One of these facilities uses a baghouse initially and the other uses a fabric filter. These dry scrubbers would remove some of the metals which would have ended up in the wastewater stream. In comparison, only one of the three facilities that burn solids uses a dry scrubbing device prior to using scrubber devices which generate wastewater. This facility uses an electrostatic precipitator initially. In addition, all three of the facilities that burn liquid waste do not recycle any of their wastewater for reuse in the scrubbing system following partial wastewater treatment. In comparison, two of the three facilities that burn solids recycle some of their partially treated wastewater for reuse in their scrubbing system. One of these facilities recycles 60 percent and the other recycles 82 percent. The reuse of partially treated wastewater would have the effect of reducing the wastewater discharge and increasing the concentration of metals in the recycled wastewater. Thus, it is difficult to assess whether there is in fact any significant difference in the concentrations of pollutants in wastewater from facilities burning solid versus liquid waste. This situation in general makes subcategorization on this basis difficult. Therefore, EPA has concluded that available data do not support subcategorizating either by the type of waste received for treatment or the type of air pollution control system used by a facility.

Based on analysis of the Industrial Waste Combustor Industry, EPA has determined that it should not subcategorize the Industrial Waste Combustors for purposes of determining appropriate limitations and standards. EPA invites comment on whether the Industrial Waste Combustors should be divided into subcategories, and if so, what should be the basis of the subcategorization. Commenters should submit data to support any suggested subcategorization.

B. Characterization of Wastewater

This section describes current water use and wastewater characterization at the 11 Industrial Waste Combustor facilities identified in the U.S. which currently discharge Industrial Waste Combustor wastewater to a receiving stream or to a POTW.

1. Water and Sources of Wastewater

Approximately 861 million gallons of wastewater are generated and discharged annually at the 11 Industrial Waste Combustor facilities. EPA has identified the sources described below as contributing to wastewater discharges at Industrial Waste Combustor operations. Only air pollution control wastewater, flue gas quench, and slag quench will be subject to the proposed effluent limitations and standards. Most of the wastewater generated by Industrial Waste Combustor operations result from these sources.

a. *Air Pollution Control System Wastewater.* Particulate matter in the effluent gas stream of an Industrial Waste Combustor is removed by four main physical mechanisms *(Handbook of Hazardous Waste Incineration*, Brunner 1989). One mechanism is interception, which is the collision between a water droplet and a particle. Another method is gravitational force, which causes a particle to fall out of the direction of the streamline. The third mechanism is impingement, which causes a water-particle to fall out of the streamline due to inertia. Finally, contraction and expansion of a gas stream allow particulate matter to be removed from the stream. Thus, removal of particulate matter can be accomplished with or without the use of water. Depending upon the type of waste being burned, Industrial Waste Combustors may produce acid gases in the air pollution control system. In order to collect these acid gases, caustic solution is generally used in a wet scrubbing system.

b. *Flue Gas Quench Wastewater.* Water is used to rapidly cool the gas emissions from combustion units. There are many types of air pollution control systems that are used to quench the gas emission from Industrial Waste Combustors. For example, in packed tower scrubbing systems, water enters from the top of the tower and gas enters from the bottom. Water droplets collect on the packing material and are rinsed off by the water stream entering the top of the tower (*Handbook of Hazardous Waste Incineration*, Brunner 1989). This rapidly cools the gas stream along with removing some particulate matter.

c. *Slag Quench Wastewater* Water is used to cool molten material generated in slagging-type combustors.

d. *Truck/Equipment Wash Wastewater.* Water is used to clean the inside of trucks and the equipment used for transporting wastes.

e. *Container Wash Wastewater.* Water is used to clean the insides of waste containers.

f. *Laboratory Drain Wastewater.* Water is used in on-site laboratories which characterize incoming waste streams and monitor on-site treatment performance.

g. *Floor Washings and Other Wastewater From Process Area.* This includes stormwater which comes in direct contact with the waste or waste handling and treatment areas. (Stormwater which does not come into contact with the wastes would not be subject to today's proposed limitations and standards. However, this stormwater is covered under the NPDES stormwater rule, 40 CFR 122.26.)

2. Wastewater Discharge

As mentioned above, approximately 861 million gallons of wastewater were discharged from the 11 of the 84 commercial industrial combustors identified by EPA based on questionnaire responses. Eight of the 11 facilities discharge wastewater directly into a receiving stream or body of water. The other three facilities discharge indirectly by introducing their wastewater into a publicly-owned treatment works (POTW). There are sixty-seven facilities that either do not generate any wastewater (43) or do not discharge their wastewater to a receiving stream or POTW (24) as explained above. In general, the primary types of wastewater discharges from discharging facilities are: air pollution control system wastewater, flue gas quench, laboratory-derived wastewater, and floor washings from process area. EPA is using the phrase ''Industrial Waste Combustor wastewater'' to refer to these wastewaters.

This regulation applies to direct and indirect discharges only.

3. Wastewater Characterization

The Agency's BPT/BAT/PSES sampling program for this industry detected 21 pollutants (conventional priority, and non-conventional) in waste steams at treatable levels. The quantity of these pollutants currently being discharged is difficult to assess. Limited monitoring data are available from facilities for the list of pollutants identified from the Agency's sampling program prior to commingling of these wastewaters with non-contaminated stormwater and other industrial wastewater before discharge. EPA also used wastewater permit information, monitoring data supplied in the 1994 Waste Treatment Industry Phase II: Incinerators Questionnaire and data supplied in the Detailed Monitoring Questionnaire to estimate current pollutant discharge levels. EPA used a ''non-process wastewater'' factor to quantify the amount of non-contaminated stormwater and other industrial process water in a facility's discharge Section 4 of the Technical Development Document (TDD) provides a more detailed description of ''non-process wastewater'' factors and their use. A facility's current discharge of treated Industrial Waste Combustor wastewater was calculated using the monitoring data supplied multiplied by the ''non-process wastewater'' factor. The Agency is soliciting comments on the approaches used to calculate the current performance as well as requesting any monitoring data available before the addition of non-contaminated stormwater or other industrial wastewater.

C. Pollutants Not Regulated

EPA is proposing effluent limitations and standards for only a few conventional, priority, and non-conventional pollutants in this proposed regulation. Among the reasons EPA may have decided not to propose effluent limitations for a pollutant are the following:

(a) The pollutant is deemed not present in Industrial Waste Combustor wastewater, because it was not detected in the influent during the Agency's sampling/data gathering efforts with the use of analytical methods promulgated pursuant to Section 304(h) of the Clean Water Act or with other state-of-the-art methods.

(b) The pollutant is present in the influent only in trace amounts and is neither causing nor likely to cause toxic effects.

(c) The pollutant was detected in the effluent from only one or a small number of samples and the pollutant's presence could not be confirmed.

(d) The pollutant was effectively controlled by the technologies used as a basis for limitations on other ''indicator'' pollutants, including those for which limitations are proposed today, and are therefore regulated by the limitations for the indicator pollutants or

(e) Insufficient data are available to establish effluent limitations.

D. Dioxins/Furans in Industrial Waste Combustor Industry

1. Background

Scientific research has identified 210 isomers of chlorinated dibenzo-p-dioxins (CDD) and chlorinated dibenzofurans (CDF). EPA attention has primarily focused on the 2,3,7,8-substituted congeners—a priority pollutant under the CWA—of which 2,3,7,8-TCDD and 2,3,7,8-TCDF are considered the most toxic. Evidence suggests that non-2,3,7,8-substituted congeners may not be as toxic. Some sources report that these non-2,3,7,8-substituted congeners may either be broken down or quickly eliminated by biological systems.

Dioxins and furans are formed as a by-product during many industrial and combustion activities, as well as during several other processes. The activities that may create dioxins under certain conditions may include:

—Combustion of chlorinated compounds, including PCBs;
—Some metals are suspected to serve as catalysts in the formation of dioxin/furans;
—Metal processing and smelting;
—Petroleum refining.
—Chlorinated organic compound manufacturing.

2. Dioxin/Furans in Industrial Waste Combustor Wastewater

EPA identified a number of dioxin/furan compounds as present in the *untreated* wastewater streams at seven of the twelve facilities sampled. Data from two closed facilities has been excluded. Thus, the following discussion relates to the data for the ten remaining facilities (a total of 32 aqueous samples).

It is important to note that EPA did not detect 2,3,7,8-TCDD or 2,3,7,8-PeCDD (the two most toxic congeners of all dioxin/furan compounds) in any of the raw wastewater samples collected. Furthermore, the dioxin/furans detected in untreated Industrial Waste Combustor wastewaters during EPA sampling at 10 sites shows that these dioxin/furans were all detected at levels significantly (orders of magnitude) below the ''Universal Treatment Standard'' (40 CFR 268.48) level established under the Resource Conservation and Recovery Act for dioxins/furans. EPA identified no dioxin/furans in the Industrial Waste Combustor wastewater effluent.

CDD/CDFs are lipophilic and hydrophobic. As such, they are most often associated, or have an affinity for, suspended particulates in wastewater matrices. The more highly chlorinated isomers (i.e. the hepta- and octa-congeners) are the least volatile and more likely to be removed through particulate adsorption or filtration. While recommended treatment technologies differ according to the wastewater characteristics, there is some evidence that dioxins generally will bind with suspended solids and some

sources have asserted that these compounds may be removed by precipitation and filtration technologies.

Of the three week long sampling episodes, the one from which BPT/BAT limits were developed had no dioxins detected in the influent or effluent. At the other two facilities, HpCDD, HpCDF, OCDD, and OCDF were detected in the influent and none were detected in the effluent. Both facilities employed a combination of chemical precipitation and filtration that may have contributed to these removals.

The most toxic congener, 2,3,7,8-TCDD, was never detected in Industrial Waste Combustor scrubber water during the sampling program; and the CDD/CDFs detected were neither detected at most facilities sampled nor found in any significant quantity. The toxic equivalent (TEQ) values found in the Industrial Waste Combustor wastewater were low values when compared to other dioxin sources in industry. The detected congeners were of the highly chlorinated type which may be treated by the methods recommended by this guideline (chemical precipitation, filtration). Also, since no dioxins were detected in the treated effluents at any of the three facilities EPA sampled, this may be evidence of dioxin removals.

Based on EPA's sampling program, no CDD/CDF meet the criteria for regulation in today's proposed rule.

The Agency has proposed CDD/CDF emission limits of 0.2 ng/dscm from the stacks of hazardous waste burning incinerators (see 61 FR 17358 of April 19, 1996 and 62 FR 24212 of May 2, 1997), and believes that the incinerators have to operate with good combustion conditions to meet the proposed emission limits. In the final LDR rulemaking that set treatment standards for CDD/CDF constituents in non-wastewater and wastewater forms of EPA Hazardous Waste Number: F032, the Agency has established (62 FR 26000 of May 12, 1997) incineration as the BDAT, after which the CDD/CDF constituents do not have to be analyzed in the effluent. EPA, therefore, considers that dioxins/furans will be sufficiently destroyed given good combustion practices.

E. Available Technologies

All 11 in-scope Industrial Waste Combustor facilities operate wastewater treatment systems. The range of treatment technologies used are similar to those in use at other categorical industries. The technologies used include physical-chemical treatment, and advanced wastewater treatment. Based on information obtained from the 1994 Waste Treatment Industry Phase II: Incinerators Questionnaire and site visits, EPA has concluded that a significant number of these treatment systems need to be upgraded to improve effectiveness and to remove additional pollutants.

Physical-chemical treatment technologies in use are:

- Precipitation/Filtration, which converts soluble metal salts to insoluble metal oxides which are then removed by filtration;
- Activated Carbon, which removes pollutants from wastewater by adsorbing them onto carbon particles;
- Multi-media/Sand Filtration, which removes solids from wastewater by passing it through a porous medium;
- Coagulation/Flocculation, which is used to assist clarification in physical-chemical treatment.

An advanced wastewater treatment technology in use is ultrafiltration, which is used to remove organic and inorganic pollutants from wastewater according to the molecule size.

The typical treatment sequence for a facility does not depend upon the type of waste accepted for treatment. In addition, most facilities use precipitation/filtration to remove metals.

F. Rationale for Selection of the Technology Basis of the Proposed Regulations

To determine the technology basis and performance level for the proposed regulations, EPA developed a database consisting of daily effluent data collected from the Detailed Monitoring Questionnaire, the 1994 Waste Treatment Industry Phase II: Incinerators Questionnaire, facility NPDES permits, facility POTW permits, and the EPA wastewater sampling program. This database was used to develop the BPT, BCT, BAT, NSPS, PSES, and PSNS effluent limitations and standards proposed today.

1. BPT

a. Introduction. The BPT effluent limitations proposed today would control identified conventional, priority, and non-conventional pollutants when discharged from industrial waste combustor facilities.

b. Rationale for BPT Limitations. As previously noted, the Industrial Waste Combustors receive for combustion large quantities of hazardous and non-hazardous industrial waste which results in discharges of a significant quantity of pollutants. The EPA estimates that 291,000 pounds per year of TSS and metal pollutants are currently being discharged directly or indirectly to the nations waters.

As previously discussed, Section 304(b)(1)(A) requires EPA to identify effluent reductions attainable through the application of ''best practicable control technology currently available for classes and categories of point sources.'' The Senate Report for the 1972 amendments to the CWA explained how EPA must establish BPT effluent reduction levels. Generally, EPA determines BPT effluent levels based upon the average of the best existing performances by plants of various sizes, ages, and unit processes within each industrial category or subcategory. In industrial categories where present practices are uniformly inadequate, however, EPA may determine that BPT requires higher level of control than any currently in place if the technology to achieve those levels can be practically applied. See *A Legislative History of the Federal Water Pollution Control Act Amendments of 1972,* U.S. Senate Committee on Public Works, Serial No. 93–1, January 1973, p. 1468.

In addition, CWA Section 304(b)(1)(B) requires a cost reasonableness assessment for BPT limitations. In determining BPT limitations, EPA must consider the total cost of treatment technologies in relation to the effluent reduction benefits achieved by such technology. This inquiry does not limit EPA's broad discretion to adopt BPT limitations that are achievable with available technology *unless* the required additional reductions are ''wholly out of proportion to the costs of achieving such marginal level of reduction.'' See *Legislative History,* op.cit.,p. 170. Moreover, the inquiry does not require the Agency to quantify benefits in monetary terms. See e.g. *American Iron and Steel Institute* v. *EPA,* 526 F. 2d 1027 (3rd Cir., 1975).

In balancing costs against the benefits of effluent reduction, EPA considers the volume and nature of expected discharges after application of BPT, the general environmental effects of pollutants, and the cost and economic impacts of the required level of pollution control. In developing guidelines, the Act does not require or permit consideration of water quality problems attributable to particular point sources, or water quality improvements in particular bodies of water. Therefore, EPA has not considered these factors in developing the limitations being proposed today. See *Weyerhaeuser Company* v. *Costle,* 590 F. 2D 1011 (D.C. Cir. 1978).

EPA concluded that the wastewater treatment performance of the facilities it surveyed was, with very limited exceptions, inadequate and that only

two facilities are using best practicable, currently available technology. Moreover, EPA only found a significant number of pollutants at ''treatable levels'' at one of the facilities. Thus, the proposed BPT effluent limitations will be based on data from this one treatment system only.

The inadequate pollutant removal performance observed generally for discharging Industrial Waste Combustor facilities is not unexpected. As pointed out previously, these facilities are burning highly variable wastes that, in many cases, are process residuals and sludges from other point source categories. EPA's review of permit limitations for the direct dischargers show that, in most cases, the dischargers are subject to ''best professional judgment'' concentration limitations which were developed from guidelines for facilities treating and discharging more specific waste streams (e.g. OCPSF limitations).

The Agency is today proposing BPT limitations for 9 pollutants. EPA considered two regulatory options to reduce the discharge of pollutants by Industrial Waste Combustor facilities. For a more detailed discussion of the basis for the limitations and technologies selected see the Technical Development Document.

The two currently available treatment systems for which the EPA assessed performance for BPT are:

• *Option A—Primary Precipitation, Solid-Liquid Separation, Secondary Precipitation, and Solid-Liquid Separation.* Under Option A, BPT limitations would be based upon two stages of chemical precipitation, each followed by some form of separation and sludge dewatering. The pH's used for chemical precipitation would vary to promote optimal removal of metals because different metals are preferentially removed at different pH levels. In addition, the first stage of chemical precipitation is preceded by chromium reduction, when necessary. In some cases, BPT limitations would require the current treatment technologies in place to be improved by use of increased quantities of treatment chemicals and additional chemical precipitation/sludge dewatering systems.

• *Option B—Primary Precipitation, Solid-Liquid Separation, Secondary Precipitation, Solid-Liquid Separation, and Sand Filtration.* The second option evaluated for BPT for Industrial Waste Combustor facilities would be based on the same technology as Option A with the addition of sand filtration at the end of the treatment train.

The Agency is proposing to adopt BPT effluent limitations based on Option B for the Industrial Waste Combustors. These limitations were developed based on an engineering evaluation of the average level of pollutant reduction achieved through application of the best demonstrated methods to control the discharges of the regulated pollutants.

EPA's decision to base BPT limitations on Option B treatment reflects primarily an evaluation of three factors: the degree of effluent reduction attainable, the total cost of the proposed treatment technologies in relation to the effluent reductions achieved, and potential non-water quality benefits. In assessing BPT, EPA considered the age, size, process, other engineering factors, and non-water quality impacts pertinent to the facilities treating wastes in this industry. No basis could be found for identifying different BPT limitations based on age, size, process or other engineering factors. Neither the age nor the size of the Industrial waste combustor facility will significantly affect either the character or treatability of the Industrial Waste Combustor wastes or the cost of treatment. Further, the treatment process and engineering aspects of the technologies considered have a relatively insignificant effect because in most cases they represent fine tuning or add-ons to treatment technology already in use. These factors consequently did not weigh heavily in the development of these guidelines. For a service industry whose service is combustion, the most pertinent factors for establishing the limitations are costs of treatment, the level of effluent reductions obtainable, and non-water quality effects.

Generally, for purposes of defining BPT effluent limitations, EPA looks at the performance of the best operated treatment system and calculates limitations from some level of average performance of these ''best'' facilities. For example, in the BPT limitations for the OCPSF Category, EPA identified ''best'' facilities on a BOD performance criteria of achieving a 95 percent BOD removal or a BOD effluent level of 40 mg/1 (54 FR 42535, November 5, 1987). For this industry, as previously explained, EPA concluded that treatment performance is, in all but two cases, inadequate. Without two stages of precipitation at different pH levels, metal removal levels are uniformly inadequate across the industry. Also, since the specific technologies employed by these two facilities were not the same, the data from these facilities could not be combined to determine BPT performance and costs. Consequently, BPT performance levels are based on data from the one well-operated system using two stages for metals precipitation at different pH levels that was sampled by EPA. EPA, of course, welcomes any additional data which currently operating facilities may have on the performance of their wastewater treatment operations.

The demonstrated effluent reductions attainable through the Option B control technology represent the BPT performance attainable through the application of demonstrated treatment measures currently in operation in this industry. The Agency is proposing to adopt BPT limitations based on the performance of the Option B treatment system for the following reasons. First, these removals are demonstrated by a facility and can readily be applied to all facilities. The adoption of this level of control would represent a significant reduction in pollutants discharged into the environment (from 181,00 to 54,000 pounds of TSS and metals). Second, the Agency assessed the total cost of water pollution controls likely to be incurred for Option B in relation to the effluent reduction benefits and determined these costs were economically reasonable.

EPA estimated the cost of installing Option A and B BPT technologies at the direct discharging facilities. The pretax total estimated annualized cost in 1992 dollars is approximately $1.736 million (if BPT is Option A) and approximately $1.952 million (if BPT is Option B). EPA concluded the cost of installation of either of these control technologies is clearly economically achievable. EPA's assessment shows that none of the direct discharging facilities will experience a line closure as a result of the installation of the necessary technology.

The Agency proposes to reject Option A because, EPA concluded that not using sand filtration as the final treatment step is not the best practicable treatment technology currently in operation for the industry. Consequently, effluent levels associated with this treatment option would not represent BPT performance levels. Also, Option A was rejected because the greater removals obtained through addition of sand filtration at Option B were obtained at a relatively insignificant increase in costs over Option A.

2. BCT

In today's rule, EPA is proposing effluent limitations guidelines and standards equivalent to the BPT guidelines for the conventional pollutants covered under BPT. In developing BCT limits. EPA considered

whether there are technologies that achieve greater removals of conventional pollutants that proposed for BPT, and whether those technologies are cost-reasonable according to the BCT Cost Test. EPA identified no technologies that can achieve greater removals of conventional pollutants than proposed for BPT, and accordingly EPA proposes BCT effluent limitations equal to the proposed BPT effluent limitations guidelines and standards.

3. BAT

EPA today is proposing BAT effluent limitations for the Industrial Waste Combustors based on the same technologies selected for BPT. The BAT effluent limitations proposed today would control identified priority and non-conventional pollutants discharged from facilities.

EPA has not identified a more stringent treatment technology option which it considered to represent BAT level of control applicable to facilities in this industry. EPA considered and rejected zero discharge as possible BAT technology for the reasons explained below.

4. New Source Performance Standards

As previously noted, under Section 306 of the Act, new industrial direct dischargers must comply with standards which reflects the greatest degree of effluent reduction achievable through application of the best available demonstrated control technologies. Congress envisioned that new treatment systems could meet tighter controls than existing sources because of the opportunity to incorporate the most efficient processes and treatment systems into plant design. Therefore, Congress directed EPA to consider the best demonstrated process changes, in-plant controls, operating methods and end-of-pipe treatment technologies that reduce pollution to the maximum extent feasible.

EPA is proposing NSPS that would control the same conventional, priority, and non-conventional pollutants proposed for control by the BPT effluent limitations. The technologies used to control pollutants at existing facilities are fully applicable to new facilities. Furthermore, EPA has not identified any technologies or combinations of technologies that are demonstrated for new sources that are more effective than those used to establish BPT/BCT/BAT for existing sources. Therefore, EPA is proposing NSPS limitations that are identical to those proposed for BPT/BCT/BAT. Again, the Agency is requesting comments to provide information and data on other treatment systems that may be pertinent to the development of standards for this industry.

EPA is specifically considering whether it should adopt BPT/BAT and NSPS of zero discharge, since so many facilities are currently not generating or not discharging any wastewater as a result of their industry waste combustor operations (see action IV.A. of today's notice). There are two primary means of achieving zero discharge: the use of dry scrubbing operations or off-site disposal of Industrial Waste Combustor wastewater. EPA evaluated the cost for facilities to dispose of their industrial waste combustor wastewater off-site and found it was less expensive than on-site treatment of the wastewater for only 3 of the eleven facilities. EPA also evaluated the cost for facilities to burn the industrial waste combustor wastewater streams they generated and found that is was also significantly more costly than wastewater treatment. EPA did not evaluate the cost for all facilities to replace their wet scrubbing systems with dry scrubbing systems, as the wet scrubbing systems have been established as the best performers (according to the HWC proposed regulation) for removing acid gases and dioxins from effluent gas streams. Also, dry scrubbing systems have an adverse affect of generating an unstable solid to be disposed of in a landfill, as opposed to the stable solids generated by wastewater treatment of air pollution control wastewater. Given the apparent environmental superiority of wet versus dry scrubbers, EPA has decided a zero discharge requirement could have unacceptable non-water quality effects. EPA also did not evaluate the cost of all facilities to recycle their industrial waste combustor wastewater, as EPA discovered that only certain types of air pollution control systems working in conjunction with one another are able to accomplish total recycle of wastewater. Thus, new air pollution control systems would have to be costed for all facilities along with recycling systems.

Overall, zero discharge is not being proposed at BPT/BAT because EPA believes that the cost to facilities of changing current air pollution control systems are too high. Also, zero discharge is not being proposed at BPT/BAT or NSPS because the change may cause unacceptable non-water quality impacts. EPA is requesting comments on its decision not to propose zero discharge for BPT/BAT and/or NSPS.

5. Pretreatment Standards for Existing Sources

Indirect dischargers in the Industrial Waste Combustor Industry, like the direct dischargers, accept for treatment wastes containing many priority and non-conventional pollutants. As in the case of direct dischargers, indirect dischargers may be expected to discharge many of these non-combustible low-volatility pollutants to POTWs at significant mass and concentration levels. EPA estimates that indirect dischargers annually discharge approximately 110,000 pounds of TSS and metals to POTWs.

Section 307(b) of the Act requires EPA to promulgate pretreatment standards to prevent pass-through of pollutants from POTWs to waters of the U.S. or to prevent pollutants from interfering with the operation of POTWs. EPA is establishing PSES for this industry to prevent pass-through of the same pollutants controlled by BPT/BAT from POTWs to waters of the U.S.

a. Pass-Through Analysis. Before proposing pretreatment standards, the Agency examines whether the pollutants discharged by the industry pass through a POTW or interfere with the POTW operation or sludge disposal practices. In determining whether pollutants through a POTW, the Agency compares the percentage of a pollutant removed by POTWs with the percentage of the pollutant removed by discharging facilities applying BPT/BAT. A pollutant is deemed to pass through the POTW when the average percentage removed nationwide by well-operated POTWs (those meeting secondary treatment requirements) is less than the percentage removed by facilities complying with BPT/BAT effluent limitation guidelines for that pollutant.

This approach to the definition of pass-through satisfies two competing objectives set by Congress: (1) that standards for indirect dischargers be equivalent to standards for direct dischargers and (2) that the treatment capability and performance of the POTW be recognized and taken into account in regulating the discharge of pollutants from indirect dischargers. Rather than compare the mass or concentration of pollutants from indirect dischargers. Rather than compare the mass or concentration of pollutants discharged by the POTW with the mass or concentration of pollutants discharged by a BPT/BAT facility, EPA compares the percentage of the pollutants removed by the plant with the POTW removal. EPA takes this approach because a comparison of mass or concentration of pollutants in a POTW effluent with pollutants in a BPT/BAT facility's effluent would not take into account the mass of pollutants discharged to the POTW from non-industrial sources nor the dilution of the

pollutants in the POTW effluent to lower concentrations from the addition of large amounts of non-industrial wastewater.

For past effluent guidelines, a study of 50 well-operated POTWs was used for the pass-through analysis. This study is referred to as the ''The Fate of Priority Pollutants in Publicly Owned Treatment Works'', September 1982 [EPA 440/1–82/303]. Because the data collected for evaluating POTW removals included influent levels of pollutants that were close to the detection limit, the POTW data were edited to eliminate influent levels less than 10 times the minimum level and the corresponding effluent values, except in the cases where none of the influent concentrations exceeded 10 times the minimum level. In the latter case, where no influent data exceeded 10 times the minimum level, the data were edited to eliminate influent values less than 5 times the minimum level. Further, where no influent data exceeded 5 times the minimum level, the data were edited to eliminate influent values less than 20 µg/l and the corresponding effluent values. These editing rules were used to allow for the possibility that low POTW removal simply reflected the low influent levels.

EPA then averaged the remaining influent data and also averaged the remaining effluent data from the 50 POTW database. The percent removals achieved for each pollutant were determined from these averaged influent and effluent levels. This percent removal was then compared to the percent removal for the BPT/BAT option treatment technology. Due to the large number of pollutants applicable for this industry, additional data from the EPA Risk Reduction Engineering Laboratory (RREL) database (Now renamed the National Risk Management Research Laboratory database) was used to augment the POTW database for the pollutants not covered by the 50 POTW Study. Based on this analysis, all of the pollutants regulated under BPT/BAT Options A and B passed through POTWs and are proposed for regulation for PSES.

b. Options Considered. EPA considered the same two regulatory options as in the BPT/BCT/BAT analysis to reduce the discharge of pollutants by Industrial Waste Combustor facilities. For a more detailed discussion of the basis for the limitations and technologies selected see the Technical Development Document. The Agency is proposing to adopt PSES effluent limitations based on Option A for the Industrial Waste Combustors. The technology for Options A and B are the same except that option A does not require the use of sand filtration as the last treatment step.

In assessing PSES, EPA considered the age, size, process, other engineering factors, and non-water quality impacts pertinent to the facilities treating wastes in this subcategory. No basis could be found for identifying different PSES limitations based on age, size, process or other engineering factors.

These proposed standards would apply to existing facilities in the Industrial Waste Combustor Industry that discharge wastewater to publicly-owned treatment works (POTWs). PSES set at these points would prevent pass-through of pollutants and help control sludge contamination.

EPA estimated the cost and economic impact of installing Option A and B PSES technologies at the indirect discharging facilities. The pretax total estimated annualized cost in 1992 dollars is approximately $758 thousand (if PSES is Option A) and approximately $798 thousand (if PSES is Option B). EPA concluded the cost of installation of either of these control technologies is clearly economically achievable. EPA's assessment shows that only one of the indirect discharging facilities will experience a line closure as a result of the installation of the necessary technology.

EPA is not, however, proposing PSES based on Option B for the following reasons. EPA has determined that, after achieving Option A treatment levels, the regulated BAT pollutants do not pass through in amounts that would justify requiring the additional Option B treatment step, sand filtration. The additional removals obtained by sand filtration are small, less than 57 lb.eq. per year discharged to receiving streams. POTW removals for the regulated pollutants range from 59 percent to 90 percent. The total additional removals associated with the Option B technology represents less than one percent of total lb.eq. removals. Consequently, requiring PSES limits based on the Option B technology is not justified by the small quantity of pollutants involved.

EPA is asking for comment on whether it should adopt Option B as PSES for this subcategory, given that annual costs are not significantly higher than Option A. Further information is provided in the Economic Analysis.

6. Pretreatment Standards for New Sources

Section 307(c) of the Act requires EPA to promulgate pretreatment standards for new sources (PSNS) at the same time it promulgates new source performance standards (NSPS). New indirect discharging facilities, like new direct discharging facilities, have the opportunity to incorporate the best available demonstrated technologies, including process changes, in-facility controls, and end-of-pipe treatment technologies.

As set forth in Section VI.F.5(a) of this notice, EPA determined that all of the pollutants selected for regulation for the Industrial Waste Combustor Industry pass through POTWs. The same technologies discussed previously for PSES are available as the basis for PSNS.

EPA is proposing that pretreatment standards for new sources be set equal to PSES for priority and non-conventional pollutants. The Agency is proposing to establish PSNS for the same priority and non-conventional pollutants as are being proposed for PSES. EPA is requesting comment on whether it should adopt PSNS based on Option B, given the increased removals that would be achieved by the addition of sand filtration.

EPA considered the cost of the proposed PSNS technology for new facilities. EPA concluded that such costs are not so great as to present a barrier to entry, as demonstrated by the fact that currently operating facilities are using these technologies. The Agency considered energy requirements and other non-water quality environmental impacts and found no basis for any different standards than the selected PSNS.

G. Development of Numerical Limitations

The proposed effluent limitations guidelines and standards in today's notice are based upon statistical procedures. This section describes the assumptions used as the basis for developing these numerical limitations.

The assumptions are: (1) Individual pollutant effluent measurements are delta-lognormal in probability distribution, (2) on a long-term average basis, good engineering practice will allow appropriately designed and well-operated wastewater treatment systems to perform at least as well as the observed performance of the system whose data were used to develop the limitations, (3) an allowance for the observed process variability will allow for the normal process variation associated with both combustion and a well-designed and operated treatment system, and (4) process variation within certain classes of pollutants, such as metals, are approximately equal.

The proposed pollutant limitations for each option, as presented in today's

notice, are provided as daily maximums and maximums for monthly averages. For total suspended solids, the maximum for monthly average limitation is based on a monitoring frequency of 20 samples per month, that is roughly one sample per weekday. In all other cases, the maximum for monthly average limitation is based on a monitoring frequency of four samples per month, that is one sample per week. The limitations were based upon pollutant concentrations collected from EPA sampling episodes. Data sources are described in Sections IV.B. A detailed explanation of the statistical procedures is provided in the statistical support document. The actual limitations are presented in the regulatory text following the preamble.

Because EPA is assuming that TSS will be monitored daily, the limitation based on the probability distribution of 20-day averages. If concentrations measured on consecutive days are correlated, then autocorrelation would have an effect on this probability distribution. However, the combustion data used to calculate the variability of the 20-day average was consecutive daily measurements from a 5-day sampling episode. Therefore, at this time, EPA does not have sufficient data to examine in detail and incorporate (if statistically significant) any autocorrelation between concentrations measured on adjacent days. However, EPA believes that autocorrelation may not be present in daily measurements of wastewater from this industry. Unlike other industries, where the industrial processes are expected to produce the same type of wastewater from one day to the next, the wastewater from the Industrial Waste Combustion industry is generated by treating wastes from different sources and industrial processes. The wastes treated on a given day will often be different than the waste treated on the following day. Because of this, autocorrelation is not expected to be present in measurements of wastewater from the Industrial Waste Combustion industry. In Section IX.B.7., EPA requests additional wastewater monitoring data. EPA will use these data to further evaluate autocorrelation in the TSS data.

VII. Costs and Impacts of Regulatory Alternative

A. Costs

The Agency estimated the cost for Industrial Waste Combustor facilities to achieve each of the effluent limitations and standards proposed today. These estimated costs are summarized in this section and discussed in more detail in the TDD. All cost estimates in this section are expressed in terms of 1992 dollars. The cost components reported in this section represent estimates of the investment cost of purchasing and installing equipment, the annual operating and maintenance costs associated with that equipment, additional costs for discharge monitoring, and costs for facilities to modify existing RCRA permits. In Section VII.C., costs are expressed in terms of a different cost component, total annualized cost. The total annualized cost, which is used to estimate economic impacts, better describes the actual compliance cost that a company will incur, allowing for interest, depreciation, and taxes. A summary of the economic analysis for the proposed regulation is contained in Section VII.C. of today's notice.

1. BPT Costs

The Agency estimated the cost of implementing the proposed BPT effluent limitations by calculating the engineering costs of meeting the required effluent reductions for each direct discharging Industrial Waste Combustor facility. This facility-specific engineering cost assessment for BPT began with a review of present waste treatment technologies. For facilities without treatment technology in-place equivalent to the BPT technology, EPA estimated the cost to upgrade its treatment technology, to use additional treatment chemicals to achieve the new discharge standards, and to employ additional personnel, where applicable for the option. The only facilities given no cost for compliance were facilities with the treatment-in-place prescribed for that option. The Agency believes that this approach overestimates the costs to achieve the proposed BPT because many facilities can achieve BPT level discharges without using all of the components of the technology basis described in Section VI.E. The Agency solicits comment on these costing assumptions. Table VII.A–1 summarizes the capital expenditures and annual O&M costs for implementing BPT. The capital expenditures for the process change component of BPT are estimated to be $6.346 million with annual O&M costs of $1.255 million for Regulatory Option B. A complete discussion of the costs for Regulatory Options A and B may be found in the TDD.

TABLE VII.A–1.—COST OF IMPLEMENTING BPT REGULATIONS

[In millions of 1992 dollars]

Regulatory option	Number of facilities	Capital costs	Annual O&M costs
Regulatory Option B	8	6.346	1.255

2. BCT/BAT Costs

The Agency estimated that there would be no cost of compliance for implementing BCT/BAT, because the technology and effluent limitations are identical to BPT and the costs are included with BPT.

3. PSES Costs

The Agency estimated the cost for implementing PSES with the same assumptions and methodology used to estimate cost of implementing BPT/BAT. A complete discussion of the costs for Regulatory Options A and B may be found in the TDD. Table VII.A–2 summarizes the capital expenditures and annual O&M costs for implementing PSES. Costs are presented only for the selected option, Option A. The capital expenditures for the process change component of PSES are estimated to be $2.090 million with annual O&M costs of $0.528 million for Regulatory Option A.

TABLE VII.A–2.—COST OF IMPLEMENTING PSES REGULATIONS

[In millions of 1992 dollars]

Option	Number of facilities	Capital costs	Annual O&M costs
Option A	3	2.090	0.528

B. Pollutant Reductions

The Agency estimated the reduction in the mass of pollutants that would be discharged from Industrial Waste Combustor facilities after the implementation of the regulations being proposed today.

1. Conventional Pollutant Reductions

EPA has calculated how much adoption of the proposed BPT/BCT limitations would reduce the total quantity of conventional pollutants that are discharged. To do this, the Agency developed an estimate of the long-term average loading (LTA) of TSS that would be discharged after the implementation of BPT. Next, the BPT/BCT LTA for TSS was multiplied by 1992 wastewater flows for each direct discharging facility to calculate BPT/BCT mass discharge loadings for TSS for each facility. The BPT/BCT mass discharge loading was subtracted from the estimated current loadings to calculate the pollutant reductions for each facility. The Agency estimates that the proposed regulations will reduce TSS discharges by approximately 88 thousand pounds per year for Regulatory Option A (two-stage chemical precipitation) and by 120 thousand pounds per year for Regulatory Option B (Regulatory Option A followed by sand filtration).

2. Priority and Nonconventional Pollutant Reductions

a. Methodology. Today's proposal, if promulgated, will also reduce discharges of priority and non-conventional pollutants. Applying the same methodology used to estimate conventional pollutant reductions attributable to application of BPT/BCT control technology, EPA has also estimated priority and non-conventional pollutant reductions for each facility. Because EPA has proposed BAT limitations equivalent to BPT, there are no further pollutant reductions associated with BAT limitations.

Current loadings were estimated by using the following data sources: the Waste Treatment Industry Phase II: Incinerators Questionnaire; the Detailed Monitoring Questionnaire; the Agency field sampling program; and, facility wastewater permit information. For many facilities, data were not available for all pollutants of concern or without the addition of other out-of-scope Industrial Waste Combustor wastewater. Therefore, methodologies were developed to estimate current performance by assessing performance of on-site treatment technologies, and by comparing combustion unit types to other facilities for which data was available, as described in Section VI.B.

b. Direct Facility Discharges (BPT/BAT). The estimated reductions in pollutants directly discharged in treated final effluent resulting from implementation of BPT/BAT are listed in Table VII.B–1. Pollutant reductions are presented only for the selected Option, Option B. Data for the other regulatory option considered, Option A, may be found in the TDD. The Agency estimates that proposed BPT/BAT regulations will reduce direct facility discharges of priority, and non-conventional pollutants by about 7 thousand pounds per year for Option B.

TABLE VII.B–1.—REDUCTION IN DIRECT DISCHARGE OF PRIORITY AND NONCONVENTIONAL POLLUTANTS AFTER IMPLEMENTATION OF BPT/BAT REGULATIONS (UNITS = LBS/YEAR)

Option	Metal compounds	Organic compounds
Option B	6,767	0 [1]

[1] The organic compounds pollutant reduction was estimated to be 0, because no facilities had the treatment-in-place for removal of organic compounds and treatment for the removal of organic compounds was not costed.

c. PSES Effluent Discharges to POTWs. The estimated reductions in pollutants indirectly discharged to POTWs resulting from implementation of PSES are listed in Table VII.B–2. Pollutant reductions are presented only for the selected Option, Option A. Data for the other regulatory option considered, Option B, may be found in the TDD. The Agency estimates that proposed PSES regulations will reduce indirect facility discharge to POTWs by 47 thousand pounds per year for Option A.

TABLE VII.B–2.—REDUCTION IN INDIRECT DISCHARGE OF PRIORITY AND NONCONVENTIONAL POLLUTANTS TO POTWS AFTER IMPLEMENTATION OF PSES REGULATIONS (UNITS = LBS/YEAR)

	Metal compounds	Organic compounds
Option A	47,276	0

C. Economic Analysis

I. Introduction and Overview

This section of the notice reviews EPA's analysis of the economic impacts of the regulation. EPA's detailed economic impact assessment can be found in the report titled ''Economic Analysis and Cost-Effectiveness Analysis of the Proposed Effluent Limitations Guidelines and Standards for Industrial Waste Combustors'' (hereafter ''EA''). The report estimates the economic effect on the industry of compliance with the regulation in terms of facility closures (severe impacts) and financial impacts short of closure (moderate impacts). The report also includes an analysis of the effects of the regulation on new Industrial Waste Combustor facilities and detailed impacts on small businesses and other small entities. A section of the EA presents an analysis of the cost-effectiveness of the proposed regulation.

The total costs for the proposed regulatory options are presented in Table VII.C–1. The proposed regulatory option for BPT/BCT/BAT is Option B (see Section VI.F.), which is estimated to have a total post-tax annualized cost of $1,381,000. The proposed regulatory option for PSES is Option A (see Section VI.F.), which is estimated to have a total post-tax annualized cost of $531,000.

TABLE VII.C–1.—TOTAL COSTS OF PROPOSED REGULATORY OPTIONS

Proposed options	Total capital costs (mil 1992$)	Total O&M costs (mil 1992$)	Total post-tax annualized costs (mil 1992$)
BPT/BCT/BAT=Option B	6.346	1.255	1.381
PSES=Option A	2.090	0.529	0.531

2. Baseline Conditions

The first step in the development of an economic analysis is the definition of the baseline state from which any changes are to be measured. The baseline should be the best assessment of the way the industry would look absent the proposed regulation. In this case, the baseline has been set by assuming the status quo will continue absent the enactment of the regulation.

In the course of the regulatory development, EPA found that six potentially affected facilities had either closed entirely or discontinued burning waste. The six facilities were extracted from the analysis. An after tax cash flow test was conducted on the remaining facilities for which sufficient data was available. The test consisted of calculating the after tax cash flows for each facility for both 1991 and 1992. If a facility experienced negative after tax cash flows in both years, the facility was deemed to be a baseline closure. No facilities failed the test, thus no facilities were deemed to be baseline closures.

In recent years, Industrial Waste Combustors have been affected by a number of opposing forces. Declines in waste volumes and disposal prices have been attributed to waste minimization by waste generators, intense price competition driven by overcapacity, and changes in the competitive balance between cement kilns (and other commercial BIFs) and commercial incinerators. The noted negative trends have been offset by factors such as increased overall waste generation as part of general economic improvement, Industrial Waste Combustors' consolidation, and reductions in on-site combustion. The Agency solicits information and data on the current size of the industry and trends related to the growth or decline in the need for the services provided by these facilities.

The Agency recognizes that its data base, which represents conditions in 1992, may not precisely reflect current conditions in the industry today. EPA recognizes that the questionnaire data were obtained several years ago and thus may not precisely mirror present conditions at every facility. Nevertheless, EPA concludes that the data provide a sound and reasonable basis for assessing the overall ability of the industry to achieve compliance with the regulations. The purpose of the analysis is to characterize the impact of the proposed regulation for the industry as a whole.

3. Methodology

EPA applies two financial tests to determine facility level economic impacts. The first is the after tax cash flow test. This test examines whether a facility loses money on a cash basis. The second test is the ratio of the facility's estimated compliance costs to the facility's revenue. These two tests were conducted at one of two levels: if the majority of the facility revenue is derived from combustion services, the tests are conducted at the facility level; however, if revenues from combustion services, the tests are conducted at the facility level; however, if revenues from combustion are not the majority of facility revenue, then the tests are conducted at waste treatment operations level if the data is available, and at the facility level as well.

The economic impact analysis measures three types of primary impacts: severe impacts (facility closures), moderate impacts (facility impacts short of closure), and job losses. Each impact analysis measure is reviewed briefly below.

- *Severe Impacts:* Severe impacts, defined as facility closures or cessation of waste treatment operations, were assessed on the finding that the regulation would be expected to cause a facility to incur, on average, negative after tax cash flow over the two-year period of analysis.
- *Moderate Impacts:* Moderate impacts were defined as a financial impact short of entire facility closure. All facilities were assessed for the incurrence of total annualized compliance costs exceeding five percent of facility revenue.
- *Employment losses:* Possible employment losses were assessed for facilities estimated to close or discontinue waste treatment operations as a result of regulation.

The economic impact analysis for the proposed Industrial Waste Combustor regulation assumes that Industrial Waste Combustor facilities would not be able to pass the costs of compliance on to their customers through price increases. While a zero cost pass-through assumption is typically characterized as a conservative assumption, in this case, it is presumably an accurate assumption as the affected facilities represent only a portion of the broader combustion services industry.

4. Cost Reasonableness and Economic Impacts of Proposed BPT/BCT/BAT

The statutory requirements for the assessment of BPT options are that the total cost of treatment options must not be wholly disproportionate to the additional effluent benefits obtained. EPA evaluates treatment options by first calculating pre-tax total annualized

costs and total pollutant removals in pounds. The ratio of the costs to the removals for each option is then evaluated relative to one another. The selected option is then compared to the range of ratios in previous regulations to gauge its impact. The results of the analysis are presented in Table VII.C–2. Option A has a ratio of $19 per lb. while option B has a ratio of $15 per lb. Option B provides significant additional pollutant removals at a relatively low cost, thus it is the selected option. Option B is also found to be within the historical bounds of BPT cost to removal ratios.

TABLE VII.C–2.—BPT COST REASONABLENESS ANALYSIS

Option	Pre-tax total annualized costs (mil 1992$)	Total removals (lbs)	Average cost reasonableness (1992 $/lb)
A	$1,736	93,443	$19
B	1,952	126,435	15

The proposed regulatory option for BPT/BCT/BAT is option B. The postcompliance analysis under option B projects no severe or moderate impacts to any of the affected facilities. The analysis estimates no facility closures, no cessation of waste burning operations, and no associated job losses resulting from compliance with the proposed option.

TABLE VII.C–3.—IMPACTS OF EVALUATED BPT/BCT/BAT OPTIONS

Option	Post-tax total annualized costs (mil 1992$)	Severe impacts (closures)	Moderate impacts (TAC/revenues >5%)	Employment losses (FTEs)
A	$1.232	0	0	0
B	1.381	0	0	0

5. Economic Impacts of Proposed PSES

The proposed regulatory option for PSES is Option A. The postcompliance analysis under the selected option projects one facility will discontinue waste burning operations. The facility as a whole is projected to remain open. The waste burning operations of this facility represent significantly less than 10 percent of total facility revenue. The cessation of waste burning operations are estimated to cause 27 job losses on a full-time equivalent basis (FTE). No other facilities are projected to suffer either severe or moderate impacts.

TABLE VII.C–4.—IMPACTS OF EVALUATED PSES OPTIONS

Option	Post-tax total annualized costs (mil 1992$)	Severe impacts (closures)	Moderate impacts (TAC/revenues >5%)	Employment losses (FTEs)
A	$0.531	1	0	27
B	0.559	1	0	27

6. Economic Impacts of Proposed NSPS and PSNS

EPA is establishing NSPS limitations equivalent to the limitations that are established for BPT/BCT/BAT. BPT/BCT/BAT limitations are found to be economically achievable; therefore, NSPS limitations will not present a barrier to entry for new facilities.

EPA is setting PSNS equal to PSES limitations for existing sources. In general, EPA believes that new sources will be able to comply at costs that are similar to or less than the costs for existing sources, because new sources can apply control technologies more efficiently than sources that need to retrofit for those technologies. As a result, given EPA's finding of economic achievability for the PSES regulation, EPA also finds that the PSNS regulation will be economically achievable and will not constitute a barrier to entry for new sources.

7. Firm-Level Impacts

The firm level analysis evaluates the effects of regulatory compliance on firms owning one or more affected Industrial Waste Combustor facilities. It also serves to identify impacts not captured in the facility level analysis. For example, some companies might be too weak financially to undertake the investment in the required effluent treatment, even though the investment might seem financially feasible at the facility level. Such circumstances can exist at companies owning more than one facility subject to regulation.

The firm-level analysis assesses the impacts of compliance costs at all facilities owned by the firm. These impacts are assessed using ratio analysis, which employs two indicators of financial viability: the rate of return on assets (ROA) and the interest coverage ratio (ICR). ROA is a measure of the profitability of a company's capital assets. It is computed as the earnings before interest and taxes minus taxes divided by total assets. ICR is a measure of the financial leverage of a company. It is computed as the earnings before interest and taxes divided by interest expense.

Two firms each own three affected Industrial Waste Combustor facilities and are subjected to the ratio analysis. The first step is to calculate the baseline ROA and ICR for each company absent the proposed regulation. The post-compliance analysis then calculates the ratios after the projected investment in wastewater treatment equipment and the associated compliance costs. One firm experiences no measurable effect as the result of compliance with the proposed regulation. Neither the ROA nor the ICR changes between the baseline and postcompliance analysis. The second firm experiences an insignificant decline in ROA and a minor decline in ICR. The decline in ICR, while significant in percentage terms, is an artifact of the firm's extremely low level of debt. As a result, the two firms are found to be not significantly impacted by the proposed regulation.

8. Community Impacts

Community impacts are assessed by estimating the expected change in employment in communities with combustors that are affected by the proposed regulation. Possible community employment effects include the employment losses in the facilities that are expected to close because of the regulation and the related employment losses in other businesses in the affected community. In addition to these estimated employment losses, employment may increase as a result of facilities' operation of treatment systems for regulatory compliance. It should be noted that job gains will mitigate community employment losses only if they occur in the same communities in which facility closures occur.

The proposed regulation is estimated to result in the postcompliance closure of the waste burning operations of one facility. The postcompliance closure results in the direct loss of 27 Full-Time Equivalent (FTE) positions. Secondary employment impacts are estimated based on multipliers that relate the change in employment in a directly affected industry to aggregate employment effects in linked industries and consumer businesses whose employment is affected by changes in the earnings and expenditures of the employees in the directly and indirectly affected industries. The application of the state specific multiplier of 5.334 to the 27 direct FTE losses leads to an estimated community impact of 144 total FTE losses as the result of the proposed rule. The county in which the closure is projected to occur has a current employment of 173,242 FTEs dispersed among 9,922 establishments. The direct and secondary job losses represent 0.08 percent of current employment in the affected county.

The FTE losses are mitigated by the job gains associated with the operation of control equipment which are estimated to be 9 FTEs nationally. The secondary and indirect effects can be estimated at the national level by using the average multiplier of 4.049, resulting in an estimate of 36 total FTE gains associated with the pollution control equipment.

9. Foreign Trade Impacts

The EA does not project any foreign trade impacts as a result of the effluent limitations guidelines and standards. Because most of the affected Industrial Waste Combustor facilities treat waste that is considered hazardous under RCRA, international trade in Industrial Waste Combustor services for treatment of hazardous wastes is virtually nonexistent.

10. Cost-Effectiveness Analysis

EPA also performed a cost-effectiveness analysis of the proposed BPT/BCT/BAT and PSES regulatory options. (A more detailed discussion can be found in the cost-effectiveness analysis section of the EA.) The cost-effectiveness analysis compares the total annualized cost incurred for a regulatory option to the corresponding effectiveness of that option in reducing the discharge of pollutants.

Cost-effectiveness calculations are used during the development of effluent limitations guidelines and standards to compare the efficiency of one regulatory option in removing pollutants to another regulatory option. Cost-effectiveness is defined as the incremental annual cost of a pollution control option in an industry subcategory per incremental pollutant removal. The increments are considered relative to another option or to a benchmark, such as existing treatment. In cost-effectiveness analysis, pollutant removals are measured in toxicity normalized units called ''pound-equivalents.'' The cost-effectiveness value, therefore, represents the unit cost of removing an additional pound-equivalent (lb. eq.) of pollutants. In general, the lower the cost-effectiveness value, the more cost-efficient the regulation will be in removing pollutants, taking into account their toxicity. While not required by the Clean Water Act, cost-effectiveness analysis is a useful tool for evaluating regulatory options for the removal of toxic pollutants. Cost-effectiveness analysis does not take into account the removal of conventional pollutants (e.g., oil and grease, biochemical oxygen demand, and total suspended solids).

For the cost-effectiveness analysis, the estimated pound-equivalents of pollutants removed were calculated by multiplying the number of pounds of each pollutant removed by the toxic weighting factor for each pollutant. The more toxic the pollutant, the higher will be the pollutant's toxic weighting factor; accordingly, the use of pound-equivalents gives correspondingly more weight to pollutants with higher toxicity. Thus, for a given expenditure and pounds of pollutants removed, the cost per pound-equivalent removed would be lower when more highly toxic pollutants are removed than if pollutants of lesser toxicity are removed. Annual costs for all cost-effectiveness analyzes are reported in 1981 dollars so that comparisons of cost-effectiveness may be made with regulations for other industries that were issued at different times.

The results of the cost-effectiveness analysis for the potential BPT/BCT/BAT options are presented in Table VII.C–5. The results for these options are presented for strictly illustrative purposes, as the selected option is to be proposed as BPT, which is subject to a cost reasonableness evaluation rather than the cost-effectiveness evaluation. The selected option is option B, which has an average cost-effectiveness of $65 per lb.eq. and an incremental (to option A) cost-effectiveness of $57 per lb.eq. This result reinforces the selection of option B for BPT/BCT/BAT as a significant incremental removal of toxic pollutants is achieved for a relatively low incremental cost.

TABLE VII.C–5.—BPT/BCT/BAT COST-EFFECTIVENESS ANALYSIS

Option	Pre-tax total annualized costs (mil 1981$)	Total removals (lb.eq.)	Average cost-effectiveness ($/lb.eq.)	Incremental cost-effectiveness ($/lb.eq.)
A	$1.231	18,581	$66	.....

TABLE VII.C–5.—BPT/BCT/BAT COST-EFFECTIVENESS ANALYSIS—Continued

Option	Pre-tax total annualized costs (mil 1981$)	Total removals (lb.eq.)	Average cost-effectiveness ($/lb.eq.)	Incremental cost-effectiveness ($/lb.eq.)
B	1.384	21,265	65	$57

The results of the cost-effectiveness analysis for the PSES regulatory options are presented in Table VII.C–6. The selected option is option A, which has an average and incremental cost-effectiveness of $85 per lb.eq. Option B has an average cost-effectiveness of $88 per lb.eq., but has an incremental (to option A) cost-effectiveness of $509 per lb.eq.

TABLE VII.C–6.—PSES COST-EFFECTIVENESS ANALYSIS

Option	Pre-tax total annualized costs (mil 1981$)	Total removals (lb.eq.), net of POTW removals	Average cost-effectiveness ($/lb.eq.)	Incremental cost-effectiveness ($/lb.eq.)
A	$0.538	6,349	$85	.....
B	0.566	6,405	88	$509

D. Water Quality Analysis and Other Environmental Benefits

1. Characterization of Pollutants

EPA evaluated the environmental benefits of controlling the discharges of 17 toxic and nonconventional pollutants from Industrial Waste Combustor facilities to surface waters and POTWs in national analyses of direct and indirect discharges. Discharges of these pollutants into freshwater and estuarine ecosystems may alter aquatic habitats, adversely affect aquatic biota, and adversely impact human health through the consumption of contaminated fish and water. Furthermore, these pollutants may also interfere with POTW operations in terms of inhibition of activated sludge or biological treatment and contamination of sewage sludges, thereby limiting the available method of disposal and thereby raising its costs. Many of these pollutants have at least one toxic effect (human health carcinogen and/or systemic toxicant or aquatic toxicant). In addition, many of these pollutants bioaccumulate in aquatic organisms and persist in the environment.

The Agency did not evaluate the effects of three non-conventional pollutants since the analysis focused on toxic and nonconventional pollutants. However, the discharge of conventional pollutants such as total suspended solids (TSS), chemical oxygen demand (COD), and total dissolved solids (TDS), can have adverse effects on human health and the environment. For example, habitat degradation can result from increased suspended particulate matter that reduces light penetration, and thus primary productivity, or from accumulation of sludge particles that alter benthic spawning grounds and feeding habitats. High COD levels can deplete oxygen levels, which can result in mortality or other adverse effects on fish.

2. Direct Discharges

EPA evaluated the potential effect on aquatic life and human health of direct wastewater discharges to receiving waters at current levels of treatment and at proposed BPT/BAT treatment levels. EPA predicted steady-state in-stream pollutant concentrations after complete immediate mixing with no loss from the system, and compared these levels to EPA-published water quality criteria guidance or to documented toxic effect levels (i.e., lowest reported or estimated toxic concentration) for those chemicals for which EPA has not published water quality criteria. (In performing this analysis, EPA used its published guidance documents that recommend numeric human health and aquatic life water quality criteria for numerous pollutants. States often consult these guidance documents when adopting water quality criteria as part of their water quality standards. However, because those State-adopted criteria may vary, EPA used the nationwide criteria guidance as the most representative value). In addition, EPA assessed the potential benefits to human health by estimating the risks (carcinogenic and systemic effects) associated with reducing pollutant levels in fish tissue and drinking water from current to proposed treatment levels. EPA estimated risks for recreational and subsistence anglers and their families, as well as the general population. EPA performed these analyses for the eight direct Industrial Waste Combustor facilities currently in operation, modeling their discharge of 17 pollutants to eight receiving streams.

Current pollutant loadings (in pounds) of the 17 toxic and nonconventional pollutants modeled are reduced by 29 percent by the proposed BPT/BAT regulatory option. In-stream concentrations for nine pollutants are projected to exceed acute or chronic aquatic life criteria or toxic effect levels in four of the eight receiving streams. The proposed BPT/BAT will eliminate excursions of the acute criteria for one pollutant and the chronic criteria of a second pollutant. Current instream concentrations or toxic effect levels exceed human health criteria in, depending on how defined, at as many as half of the receiving streams. The proposed BPT/BAT limitations reduces these excursions to a limited extent.

The excess annual cancer cases at current pollutant loadings are projected to be much less than 0.5 from the ingestion of contaminated fish and drinking water by all populations evaluated. No benefits due to the reduction of cancer cases are projected to be achieved by the regulation. Systemic toxicant effects are projected for subsistence anglers in three of the receiving streams nationwide from three pollutants at current discharge levels. The proposed BPT/BAT regulated discharge levels will reduce the systemic toxicant effects to subsistence anglers on a single receiving stream and

pollutant, reducing the exposed population by 47 percent.

3. Indirect Dischargers

EPA also evaluated the aquatic life and human health impacts of POTW wastewater discharges of 17 pollutants on receiving stream water quality at current and proposed pretreatment levels for the three indirect discharging Industrial Waste Combustor facilities currently in operation. These three facilities discharge to three POTWs with outfalls located on three receiving streams. EPA predicted steady-state-in-stream pollutant concentrations after complete immediate mixing with no loss from the system, and compared these levels to EPA-published water quality criteria or to documented toxic effect levels (i.e., lowest reported or estimated toxic concentration) for those chemicals for which EPA has not published water quality criteria. Nationwide criteria guidance were used as the most representative value. In addition, the potential benefits to human health were evaluated by estimating the potential reduction of carcinogenic risk and systemic effects from consuming contaminated fish and drinking water. Risks were again estimated for recreational and subsistence anglers and their families as well as the general population.

Current loadings (in pounds) of the 17 pollutants evaluated for water quality impacts are reduced 97 percent by the proposed pretreatment regulatory options.

EPA projects that in-stream concentrations of one pollutant will exceed human health criteria or toxic effect levels in one receiving stream at current discharge levels. The proposed pretreatment regulatory option eliminates this excursion. EPA also projects a single receiving stream with in-stream concentrations for one pollutant projected to exceed chronic aquatic life criteria or toxic effect levels at current discharge levels. This stream will no longer have this excursion under the proposed pretreatment. Estimates of the increase in value of recreational fishing to anglers as a result of this improvement range from $78,600 to $281,000 annually (1992 dollars).

The excess annual cancer cases at current pollutant loadings are projected to be much less than 0.5 from the ingestion of contaminated fish and drinking water by all populations evaluated. No benefits due to the reduction of cancer cases are projected to be achieved by the regulation. Systemic toxicant effects (non-cancer adverse health effects including reproductive toxicity) are projected for subsistence anglers in one receiving stream for two pollutants at current discharge levels. No systemic toxicant effects are projected at the proposed pretreatment level.

4. POTWs

EPA also evaluated the potential adverse impacts on POTW operations (inhibition of microbial activity during biological treatment) and contamination of sewage sludge at the three POTWs that received wastewater from Industrial Waste Combustors. Inhibition of POTW operations is estimated by comparing predicted POTW influent concentrations to available inhibition levels. Inhibition values were obtained from *Guidance Manual for Preventing Interference at POTWs* (U.S. EPA, 1987) and *CERCLA Site Discharges to POTWs: Guidance Manual* (U.S. EPA, 1990). Potential contamination of sewage sludge was estimated by comparing projected pollutant concentrations in POTW sewage sludge to available EPA criteria. The *Standards for the Use or Disposal of Sewage Sludge* (40 CFR Part 503) contain limits on the concentrations of pollutants in sewage sludge that is used or disposed. For the purpose of this analysis, the sewage sludge is considered contaminated if the concentration of a pollutant in sewage sludge exceeds the limits presented in 40 CFR Part 503 for land application of the slude or surface disposal.

EPA was able to evaluate 12 pollutants for potential POTW operation inhibition and seven pollutants for potential sewage sludge contamination. At current discharge levels, EPA projects inhibition problems at one of the POTWs, caused by one pollutant. At the proposed pretreatment regulatory option, EPA projects no inhibition problems at the POTW. The Agency projects sewage sludge contamination at two of the POTWs, caused by three pollutants at current discharge levels. At the proposed pretreatment regulatory option, EPA projects no biosolids contamination problems at these POTWs. EPA estimates that the savings in biosolids disposal costs to these POTWs is about $7,400 (1992 dollars) annually.

The POTW inhibition values used in this analysis are not, in general, regulatory values. EPA based these values upon engineering and health estimates contained in guidance or guidelines published by EPA and other sources. Therefore, EPA does not intend to base its regulatory approach for proposed pretreatment discharge levels upon the finding that some pollutants interfere with POTWs by impairing their treatment effectiveness. Of course, as explained above. EPA did find that certain pollutants would pass through a basis for establishing pretreatment standards. Still, the values used in this analysis help indicate the potential benefits for POTW operations that may result from the compliance with proposed pretreatment discharge levels.

EPA evaluated the benefits of reducing contamination of sewage sludge in its analysis of projected POTW sewage sludge disposal practices at current and proposed pretreatment levels. Current levels resulted in two POTWs whose sewage sludge may not be land applied, although more expensive alternatives are available for disposal. EPA's analyses showed that of these two POTWs, one will shift into qualifying for land application of POTW sewage sludge under the proposed pretreatment regulatory option. Land application quality sewage sludge meets ceiling pollutant concentration limits, class B pathogen requirements, and vector attraction reduction requirements. Because costs for land application tend to be lower than those for other disposal methods, this shift away from incineration, co-disposal, and surface disposal results in a cost savings. The other POTW will upgrade from land application pollutant ceiling levels to the more stringent land application pollutant concentration limits. This POTW is expected to benefit through reduced record-keeping requirements and exemption from certain POTW biosolids management practices. However, EPA has not estimated a monetary value for these more modest benefits.

E. Non-water Quality Environmental Impacts

The elimination or reduction of one form of pollution may create or aggravate other environmental problems. Therefore, Sections 304(b) and 306 of the Act call for EPA to consider non-water quality environmental impacts of effluent limitations guidelines and standards. Accordingly, EPA has considered the effect of these regulations on air pollution, waste treatment residual generation, and energy consumption.

1. Air Pollution

Industrial Waste Combustor facilities treat wastewater streams which contain very low concentrations of volatile organic compounds (VOCs). Specifically, the concentrations of VOCs are typically below treatable levels in industrial Waste Combustor wastewater streams.

Since there are only low concentrations of VOCs in Industrial

Waste Combustor wastewater, no significant air emissions could be generated by the proposed treatment technologies. Thus, EPA does not expect adverse air impacts due to the proposed regulations.

2. Waste Treatment Residuals

Waste treatment residuals would be generated due to the following technologies, if implemented, to meet proposed regulations: metals precipitation and sand filtration. The waste treatment residuals generated due to the implementation of the technologies discussed above were costed for off-site disposal in Subtitle C and D landfills. These costs were included in the economic evaluation of the proposed technologies.

EPA estimates that an additional 1.3 million pounds of sludge will be generated annually by 11 facilities from metals precipitation and sand filtration operations. EPA believes that the disposal of this filter cake would not have an adverse effect on the environment or result in the release of pollutants in the filter cake to other media. The disposal of these wastes into controlled Subtitle C or D landfills are strictly regulated by the RCRA program.

3. Energy Requirements

EPA estimates that the attainment of BPT, BCT, BAT, NSPS, PSES, and PSNS will increase energy consumption by a small increment over present industry use. Overall, and increase of 1,840 thousand Kilowatt hours per year would be required for the proposed regulation which equates to 1,031 barrels of oil per year. The United States consumed 19 million barrels of oil per day in 1994.

VIII. Related Acts of Congress and Executive Orders

A. Paperwork Reduction Act

The proposed effluent guidelines and standards contain no information collection activities and, therefore, no information collection request (ICR) has been submitted to the Office of Management and Budget (OMB) for review and approval under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.*

B. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA), 5 U.S.C. 601 *et seq.*, provides that, whenever an agency is required to publish general notice of rulemaking for a proposed rule, the agency generally must prepare (and make available for public comment) an initial regulatory flexibility analysis (IRFA). The agency must prepare an IRFA for a proposed rule unless the head of the agency certifies that it will not have a significant economic impact on a substantial number of small entities. EPA is today certifying, pursuant to section 605(b) of the RFA, that the proposed rule will not have a significant economic impact on a substantial number of small entities Therefore, the Agency did not prepare an IRFA.

While EPA has so certified today's rule, the Agency nonetheless prepared a regulatory flexibility assessment equivalent to that required by the Regulatory Flexibility Act as modified by the Small Business Regulatory Enforcement Fairness Act of 1996. The assessment for this rule is detailed in the ''Economic Analysis of Proposed Effluent Limitations Guidelines and Standards for the Industrial Waste Combustors''.

The proposal, if promulgated, will not have a significant economic impact on a substantial number of small entities for the following reasons. The RFA defines ''small entity'' to mean a small business, small organization or small governmental jurisdiction. Today's proposal would establish requirements applicable only to commercial Industrial Waste Combustors. As previously explained, the eleven facilities that would be subject to the proposal if adopted, are all owned by large entities with firm revenues in excess of $230 million per year. Consequently, there are no small businesses that would be affected by the proposal. Therefore, the proposed rule, if promulgated, will not have a significant economic impact on a substantial number of small entities.

C. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104–4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with ''Federal mandates'' that may result in expenditures to State, local, and tribal governments, in the aggregate, or to the private sector, of $100 million or more in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

EPA has determined that this rule does not contain a Federal mandate that may result in expenditures of $100 million or more for State, local, and tribal governments, in the aggregate, or the private sector in any one year. EPA has estimated total annualized costs of the proposed rule as $2.16 million (1996$, post-tax). Thus, today's rule is not subject to the requirements of Sections 202 and 205 of the UMRA.

EPA has determined that this rule contains no regulatory requirements that might significantly or uniquely affect small governments. Thus, today's rule is not subject to the requirements of Section 203 of the UMRA.

D. Executive Order 12866

Under Executive Order 12866 (58 FR 51735 (October 4, 1993)), the Agency must determine whether the regulatory action is ''significant'' and therefore subject to OMB review and the requirements of the Executive Order. The Order defines ''significant regulatory action'' as one that is likely to result in a rule that may:

(1) have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;

(2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof, or

(4) raise novel legal or policy issues arising out of legal mandates, the

President's priorities, or the principles set forth in the Executive Order.

It has been determined that this rule is a not a ''significant regulatory action'' under the terms of Executive Order 12866 and is therefore not subject to OMB review.

E. National Technology Transfer and Advancement Act

Under section 12(d) of the National Technology Transfer and Advancement Act, the Agency is required to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, business practices, etc.) that are developed or adopted by voluntary consensus standard bodies. Where available and potentially applicable voluntary consensus standards are not used by EPA, the Act requires the Agency to provide Congress, through the Office of Management and Budget, an explanation of the reasons for not using such standards.

EPA is not proposing any new analytical test methods as part of today's proposed effluent limitations guidelines and standards. EPA performed literature searches to identify any analytical methods from industry, academia, voluntary consensus standard bodies and other parties that could be used to measure the analytes in today's proposed rulemaking. The results of this search confirm EPA's determination to continue to rely on its existing analytical tests methods for the analytes for which effluent limitations and pretreatment standards are proposed. Although the Agency initiated data collection for these effluent guidelines many years prior to enactment of the NTTAA, traditionally, analytical test method development has been analogous to the Act's requirements for consideration and use of voluntary consensus standards.

The proposed rule would require dischargers to monitor for TSS, pH, arsenic, cadmium, chromium, copper, lead, mercury, silver, titanium, and zinc. Methods for monitoring these pollutants are specified in tables at 40 CFR Part 136. When available, methods published by voluntary consensus standards bodies are included in the list of approved methods in these tables. Specifically, voluntary consensus standards from the American Society for Testing and Materials (ASTM) are approved for pH, arsenic, cadmium, chromium, copper, lead, mercury, and zinc. Further, EPA has approved the use of voluntary consensus standards from the 18th edition of Standard Methods (published jointly by the American Public Health Association, the American Water Works Association and the Water Environment Federation) for TSS, arsenic, cadmium, chromium, copper, lead, mercury, silver, titanium, and zinc. In addition, EPA's regulation authorizes the use of USGS methods for TSS, pH, arsenic, cadmium, chromium, copper, lead, mercury, silver, and zinc.

EPA requests comments on the discussion of NTTAA, on the consideration of various voluntary consensus standards, and on the existence of other voluntary consensus standards that EPA may not have found.

IX. Solicitation of Data and Comments

A. Introduction and General Solicitation

EPA invites and encourages public participation in this rulemaking. The Agency asks that comments address any perceived deficiencies in the record of this proposal and that suggested revisions or corrections be supported by data.

To ensure that EPA can read, understand and therefore properly respond to comments, the Agency would prefer that commenters cite, where possible the paragraph(s) or sections in the notice or supporting documents to which each comment refers. Commenters should use a separate paragraph for each issue discussed.

The Agency invites all parties to coordinate their data collection activities with EPA to facilitate mutually beneficial and cost-effective data submissions. EPA is interested in participating in study plans, data collection and documentation. Please refer to the **FOR FURTHER INFORMATION** section at the beginning of today's document for technical contracts at EPA.

B. Specific Data and Comment Solicitations

EPA has solicited comments and data on many individual topics throughout this preamble. The Agency incorporates each and every such solicitation here, and reiterates its interest in receiving data and comments on the issues addressed by those solicitations. EPA particularly requests comments and data on the following issues:

1. Exclusion of Captive and Intracompany Facilities From the Scope the Regulation

Most facilities which only burn waste from off-site facilities under the same corporate structure (intracompany facility) and/or only burn waste generated on-site (captive facility) are already subject to national effluent guidelines based on the manufacturing operations at the facility. Specifically, 107 of the 156 captive and intracompany facilities which received a screener survey and generated wastewater as a result of their combustion operations either completed a questionnaire for an effluent guidelines regulation or stated that they were subject to effluent guidelines. Three of these 156 facilities identified themselves as zero dischargers. Finally, only 46 of these 156 facilities did not identify an effluent guideline for their discharge. Of these facilities, it is likely that some are zero dischargers and some are already subject to effluent guidelines, although the respondent was unaware of that fact. In addition, 83 percent of all captive facilities and 73 percent of all intracompany facilities reported that the combustion unit wastewaters made up less than 20 percent of the final wastewater stream discharged from the facility. The Agency is requesting comment on not including captive and intracompany facilities in today's proposed rule as well as any additional data on the treatment of IWC wastewater at such operations. This would include information demonstrating that the IWC wastewater is commingled for treatment and subject to effluent limitations or pretreatment standards under regulations for other point source categories.

As described above, today's proposal would apply to all commercial IWC's and not to so-called ''captive'' and ''intra-company'' combustors—combustors that burn wastes either generated on-site or received from off-site facilities that are owned in common with the combustor. So long as these combustors do not burn wastes received from off-site from facilities that are not subject to common ownership, the effluent generated from the treatment of IWC wastewater at such combustors would not be subject to the proposal. Essentially, as explained above, EPA has concluded that such wastewater is generally commingled for treatment with wastewater generated in the primary industrial process at the site and subject to effluent limitations and standards for that industrial category. However, EPA recognizes that there may be circumstances in which this is not the case. For example, there may be stand-alone combustors burning wastes received from facilities under common ownership without other, on-site industrial operations. Further, even

where a combustor is operated in conjunction with on-site industrial activities, the IWC wastewater may be treated and discharged separately from that generated in other operations (or treated separately and mixed before discharge). Under these conditions, EPA is not certain that the wastewater should, in fact, be treated differently from that of commercial IWC wastewater. EPA specifically solicits comments and data on whether or not to include such facilities within the scope of the final rule. Following proposal, EPA will be collecting further data on such facilities.

2. *De Minimis* Level for Scope of Regulation

The Agency solicits comment on including an exclusion from the scope of this regulation for industrial waste combustors located at manufacturing facilities that accept a *de minimis* quantity of waste from other facilities not within the same corporate umbrella due to possible management practices at manufacturing facilities. Manufacturers may receive small quantities of waste from off-site to burn due to a site's ability to handle the waste properly in comparison to the site at which the waste is generated. Information collected from the 1994 Waste Treatment Industry Phase II: Incinerators Questionnaire was not designed to collect this information due to the method of creating the mailing list. EPA solicits additional data to determine if a *de minimis* level should be established and information on the appropriate level.

3. Subcategorization of Industrial Waste Combustors

Based on analysis of the Industrial Waste Combustor Industry, EPA has determined that it should not further subcategorize the Industrial Waste Combustors. EPA invites comment on whether the Industrial Waste Combustors should be divided into subcategories, including the basis of the subcategorization. Specifically, the Agency is requesting comments on whether it is necessary to subcategorize the industry based on the types of wastewater generated at an Industrial Waste Combustor facility.

4. Methodology for Estimating Current Performance

The Agency is soliciting comments on the approaches used to calculate the current performance as well as requesting any monitoring data available before the addition of non-contaminated stormwater or other industrial wastewater.

Many facilities in the Industrial Waste Combustor Industry commingle waste receipts from off-site with other on-site generated wastewater, such as non-contaminated stormwater and other industrial wastewater, prior to discharging. This mixing of waste may occur prior to or after treatment of the waste receipts. Because the commingling occurs prior to the discharge point, monitoring data collected by facilities at the discharge point cannot be used to estimate the current treatment performance of certain wastewater treatment operations. Under the approach EPA is proposing, in the case of the introduction of stormwater after treatment but before discharge, the allowable discharges from such a facility would be based on the guideline limitations and standards before the introduction of the stormwater. In the case of the stormwater or other wastes introduced *before* treatment, as discussed previously, the EPA used several methods to estimate current industry performance. EPA solicits comment on the methodologies used to estimate current discharge performance. EPA also requests discharge monitoring data from facilities prior to commingling the Industrial Waste Combustor wastewater with other sources of wastewater. These data will be used to assess current discharge performance and to statistically analyze the autocorrelation of concentrations measured on consecutive days (See Section VI.G. for an explanation of autocorrelation). Before submitting discharge monitoring data, please contact Samantha Hopkins at (202) 260–7149 to ensure that the data include information to support its use for calculating current performance and possible limitations.

5. Additional Technologies for the Control of Wastes Containing a Large Variety of Metal in Continually Changing Concentrations

The BPT effluent limitations and standards for the control of metals is based on the use of two stages of chemical precipitation and sand filtration. An additional treatment technology was sampled in the process of developing the proposed regulation. Performance by this treatment technology was adequate for the metals found in the wastewater at treatable levels. The additional treatment technology sampled is proprietary information. EPA solicits information on additional treatment technologies applicable to the treatment of wastes containing a large variety of metal in continually changing concentrations that are commercially available.

6. Options Selection

EPA is asking for comment on whether it should adopt Option B as PSES for this subcategory, given that annual costs are very close to Option A. Additional information is provided in the EA. Option A is: Primary Precipitation, Solid-Liquid Separation, Secondary Precipitation, and Solid-Liquid Separation.

Option B is: Primary Precipitation, Solid-Liquid Separation, Secondary Precipitation, Solid-Liquid Separation, and Sand Filtration.

7. Costing Methodology

The only facilities given no cost for compliance were facilities with the treatment-in-place prescribed for that option. The Agency believes that this approach overestimates the costs to achieve the proposed BPT because many facilities can achieve BPT level discharges without using all of the components of the technology basis described in Section VI.E. The Agency solicits comments on these costing assumptions. Table VII.A–1 summarizes the capital expenditures and annual O&M costs for implementing BPT. The capital expenditures for the process change component of BPT are estimated to be $5.924 million with annual O&M costs of $1.085 million for Regulatory Option B.

8. Estimation of Industry Size

From the information obtained from the 1994 Waste Treatment Industry Phase II: Incinerators Questionnaire, EPA estimated that there are 84 facilities in the Industrial Waste Combustor Industry. However, only 11 of these facilities are currently operating and discharging Industrial Waste Combustor wastewater to a POTW or water body. EPA's estimation of the industry size is based on data provided from questionnaire mailed to facilities that EPA identified using information available in 1992. As stated earlier, facilities names were gathered from various sources, and no listing of non-hazardous waste combustion units was available. Therefore, there may have been Industrial Waste Combustor facilities not included on the questionnaire mailing list. EPA solicits information on the number, name, and location of facilities within the industry.

9. Treatment of Incidental Organic Pollutants Detected in the Industrial Waste Combustor Industry

During the EPA sampling program, EPA collected analytical data on the presence of organic pollutants in the Industrial Waste Combustor wastewater.

Various organic pollutants were detected at low concentrations in the untreated Industrial Waste Combustor wastewater. EPA sampled treatment technologies to control the discharge of inorganic pollutants for Industrial Waste Combustors. In most circumstances, the organic pollutants detected at low concentrations in the treatment facility influent were found at non-detectable levels prior to any treatment for the organic pollutants. Because the initial concentrations of organic pollutants were very low, the effect of the addition of treatment chemicals and other sources of wastewater is to cause the concentrations to become lower and thereby non-detectable. EPA solicits comment on the necessity of control on low level organic pollutants for the Industrial Waste Combustors and technologies appropriate for the control of low level organics as well as analytical data to characterize the performance of such treatment technologies.

10. Concentration Limitations vs. Production-based Limitations

EPA is requesting comments on the decision to use concentration limitations as opposed to production-based limitations. EPA based the decision on the fact that Industrial Waste Combustors do not make a product. However, the limitations could potentially be based upon how much waste is burned rather than product generation. EPA sees the concentration limitations as a potential problem in that facilities could generate more process water to comply with the limitations rather than treating the process water sufficiently. For example, a facility could increase the volume of scrubber water by decreasing the amount of scrubber water that is recycled for reuse. EPA is requesting comments on this issue.

11. Zero-discharge Standards for BPT/BAT and NSPS

EPA is specifically considering whether it should adopt BPT/BAT and NSPS of zero discharge, since so many facilities are currently not generating or not discharging any wastewater as a result of their Industrial Waste Combustor operations (see section IV.A. of today's notice). Zero discharge is primarily accomplished through the use of dry scrubbing operations or through off-site disposal of Industrial Waste Combustor wastewater. EPA evaluated the cost for facilities to dispose of their Industrial Waste Combustor wastewater off-site and found it was less expensive than on-site treatment of the wastewater for only 3 of the eleven facilities. EPA also evaluated the cost for facilities to burn the Industrial Waste Combustor wastewater streams they generated and found that it was significantly more costly than wastewater treatment. EPA did not evaluate the cost for all facilities to replace their wet scrubbing systems with dry scrubbing systems, as the wet scrubbing systems have been established as the best performers (according to the Hazardous Waste Combustion proposed regulation) for removing acid gages and dioxins from effluent gas streams. Also, dry scrubbing systems have an adverse affect of generating an unstable solid to be disposed of in a landfill, as opposed to the stable solids generated by wastewater treatment of air pollution control wastewater. EPA also did not evaluate the cost for all facilities to recycle their Industrial Waste Combustor wastewater, as EPA discovered that only certain types of air pollution control systems working in conjunction with one another are able to accomplish total recycle of wastewater. Thus, new air pollution control systems would have to be costed for all facilities along with recycling systems. Overall, zero discharge at BPT/BAT or NSPS is not being proposed because EPA believes that the cost to facilities of changing current air pollution control systems are probably too high for BPT/BAT and because the change may cause unacceptable non-water quality impacts. EPA is requesting comments on its decision not to propose zero discharge for BPT/BAT and/or NSPS.

X. Regulatory Implementation

A. Applicability

While today's proposal represents EPA's best judgment a this time, the promulgated effluent limitations and standards may change based on additional information or data submitted by commenters or developed by the Agency. Consequently, the permit writer may consider the proposed limits and data provided in the Technical Support Document in developing permit limits. Although the information provided in the Development Document may provide useful information and guidance to permit writers in determining best professional judgment permit limits, the permit writer will still need to justify any permit limits based on the conditions at the individual facility until EPA promulgates final limitations.

B. Upset and Bypass Provisions

A ''bypass'' is an intentional diversion of waste streams from any portion of a treatment facility. An ''upset'' is an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. EPA's regulations concerning bypasses and upsets are set forth at 40 CFR 122.41(m) and (n).

C. Variances and Modifications

The CWA requires application of the effluent limitations established pursuant to Section 301 or the pretreatment standards of Section 307 to all direct and indirect discharges. However, the statute provides for the modification of these requirements in a limited number of circumstances. Moreover, the Agency has established administrative mechanisms to provide an opportunity for relief from the application of national effluent limitations guidelines and pretreatment standards for categories of existing sources for priority, conventional and non-conventional pollutants.

EPA will develop effluent limitations or standards different from the otherwise applicable requirements if an individual existing discharging facility is fundamentally different with respect to factors considered in establishing the limitations or standards applicable to the individual facility. Such a modification is known as a ''fundamentally different factors'' (FDF) variance.

Early on, EPA, by regulation, provided for FDF modifications from BPT effluent limitations, BAT limitations for priority and non-conventional pollutants and BCT limitation for conventional pollutants for direct dischargers. For indirect dischargers, EPA provided for FDF modifications from pretreatment standards for existing facilities. FDF variances for priority pollutants were challenged judicially and ultimately sustained by the Supreme Court (*Chemical Manufacturers Ass'n* v. *NRDC.* 479 U.S. 116 (1985)).

Subsequently, in the Water Quality Act of 1987, Congress added new Section 301(n) of the Act explicitly to authorize modification of the otherwise applicable BAT effluent limitations or categorical pretreatment standards for existing sources if a facility is fundamentally different with respect to the factors specified in Section 304 (other than costs) from those considered by EPA in establishing the effluent limitations or pretreatment standard. Section 301(n) also defined the conditions under which EPA may establish alternative requirements. Under Section 301(n), an application for approval of FDF variance must be based

solely on (1) information submitted during the rulemaking raising the factors that are fundamentally different or (2) information the applicant did not have an opportunity to submit. The alternate limitation or standard must be not less stringent than justified by the difference and not result in markedly more adverse non-water quality environmental impacts than the national limitation or standard.

EPA regulations at 40 CFR Part 125 Subpart D, authorizing the Regional Administrators to establish alternative limitations and standards, further detail the substantive criteria used to evaluate FDF variance request for existing direct dischargers. Thus, 40 CFR 125.31(d) identifies six factors (e.g, volume of process wastewater, age and size of a discharger's facility) that may be considered in determining if a facility is fundamentally different. The Agency must determine whether, on the basis of one or more of these factors, the facility in question is fundamentally different from the facilities and factors considered by the EPA in developing the nationally applicable effluent guidelines. The regulation also lists four factors (e.g., infeasibility of installation within the time allowed or a discharger's ability to pay) that may not provide a basis for an FDF variance. In addition, under 40 CFR 125.31(b)(3), a request for limitations less stringent than the national limitation may be approved only if compliance with the national limitations would result in either (a) a removal cost wholly out of proportion to the removal cost considered during development of the national limitations, or (b) a non-water quality environmental impact (including energy requirements) fundamentally more adverse than the impact considered during development of the national limits. EPA regulations provide for an FDF variance for existing indirect discharger at 40 CFR 403.13. The conditions for approval of a request to modify applicable pretreatment standards and factors considered are the same as those for indirect discharges.

The legislative history of Section 301(n) underscores the necessity for the FDF variance applicant to establish eligibility for the variance. EPA's regulations at 40 CFR 125.32(b)(1) are explicit in imposing this burden upon the applicant. The applicant must show that the factors relating to the discharge controlled by the applicant's permit which are claimed to be fundamentally different are, in fact, fundamentally different from those factors considered by the EPA in establishing the applicable guidelines. The pretreatment regulations incorporate a similar requirement at 40 CFR 403.13(h)(9).

An FDF variance is not available to a new source subject to NSPS or PSNS

2. Water Quality Variances

Section 301(g) of the CWA authorizes a variance from BAT effluent guidelines for certain nonconventional pollutants due to localized environmental factors. These pollutants include ammonia, chlorine, color, iron, and total phenols.

3. Permit Modifications

Evens after EPA (or an authorized State) has issued a final permit to a direct discharger, the permit may still be modified under certain conditions. (When a permit modification is under consideration, however, all other permit conditions remain in effect.) A permit modification may be triggered in several circumstances. These could include a regulatory inspection or information submitted by the permittee that reveals the need for modification. Any interested person may request that a permit modification be made. There are two classifications of modifications: major and minor. From a procedural standpoint, they differ primarily with respect to the public notice requirements. Major modifications require public notice while minor modifications do not. Virtually any modifications that results in less stringent conditions is treated as a major modifications, with provisions for public notice and comment. Conditions that would necessitate a major modification of a permit are described in 40 CFR 122.62. Minor modifications are generally non-substantive changes. The conditions for minor modifications are described in 40 CFR 122.63.

4. Removal credits

The CWA establishes a discretionary program for POTWs to grant ''removal credits'' to their indirect dischargers. This credit in the form of a less stringent pretreatment standard, allows an increased concentration of a pollutant in the flow from the indirect discharger's facility to the POTW. *See* 40 CFR 403.7. EPA has promulgated removal credit regulations as part of its pretreatment regulations. Under EPA's pretreatment regulations, the availability of a removal credit for a particular pollutant is linked to the POTW method of using or disposing of its sewage sludge. The regulations provide that removal credits are only available for certain pollutants regulated in EPA's 40 CFR Part 503 sewage sludge regulations (58 FR 9386). The pretreatment regulations at 40 CFR Part 403 provide that removal credits may be made potentially available for the following pollutants:

(1) If a POTW applies its sewage sludge to the land for beneficial uses, disposes of it on surface disposal sites or incinerates it, removal credits may be available, depending on which use or disposal method is selected (so long as the POTW complies with the requirements in Part 503). When sewage sludge is applied to land, removal credits may be available for ten metals. When sewage sludge is disposed of on a surface disposal site, removal credits maybe available for three metals. When these sewage sludge is incinerated, removal credits maybe available for seven metals and for 57 organic pollutants (40 CFR 403.7(a)(3)(iv)(A)).

(2) In addition, when sewage sludge is used on land or disposed of on a surface disposal site or incinerated, removal credits may also be available for additional pollutants so long as the concentration of the pollutant in sludge does not exceed a concentration level established in Part 403. When sewage sludge is applied to land, removal credits may be available for two additional metals and 14 organic pollutants. When the sewage sludge is disposed of on a surface disposal site, removal credits may be available for seven additional metals and 13 organic pollutants. When the sewage sludge is incinerated, removal credits may be available for three other metals (40 CFR 403.7(a)(3)(iv)(B)).

(3) When a POTW disposes of its sewage sludge in a municipal solid waste landfill (MSWLF) that meets the criteria of 40 CFR Part 258, removal credits may be available for any pollutant in the POTW's sewage sludge (40 CFR 403.7(a)(3)(iv)(C)). Thus, given compliance with the requirements of EPA's removal credit regulations,[2] following promulgation of the pretreatment standards being proposed today, removal credits may be authorized for any pollutant subject to pretreatment standards if the applying POTW disposes of its sewage sludge in a MSWLF that meets the requirements of 40 CFR part 258. If the POTW uses or disposes of its sewage sludge by land application, surface disposal or incineration, removal credits may be available for the following metal pollutants (depending on the method of use or disposal): arsenic, cadmium,

[2] Under Section 403.7, a POTW is authorized to give removal credits only under certain conditions. These include applying for, and obtaining, approval from the Regional Administrator (or Director of a State NPDES program with an approved pretreatment program), a showing of consistent pollutant removal and an approved pretreatment program. *See* 40 CFR 403.7(a)(3)(i), (ii), and (iii).

chromium, copper, iron, lead, mercury, molybdenum, nickel, selenium and zinc. Given compliance with Section 403.7, removal credits may be available for the following organic pollutants (depending on the method of use or disposal) if the POTW uses or disposes of its sewage sludge: benzene, 1,1-dichloroethane, 1,2-dibromoethane, ethylbenzene, methylene chloride, toluene, tetrachloroethene, 1,1,1-trichloroethane, 1,1,2-trichloroethane and trans-1,2-dichloroethene.

Some facilities may be interested in obtaining removal credit authorization for other pollutants being considered for regulation in this rulemaking for which removal credit authorization would not otherwise be available under Part 403. Under Sections 307(b) and 405 of the CWA, EPA may authorize removal credits only when EPA determines that, if removal credits are authorized, that the increased discharges of a pollutant to POTWs resulting from removal credits will not affect POTW sewage sludge use or disposal adversely. As discussed in the preamble to amendments to the Part 403 regulations (58 FR 9382–83), EPA has interpreted these sections to authorize removal credits for a pollutant only in one of two circumstances. Removal credits may be authorized for any categorical pollutant (1) for which EPA have established a numerical pollutant limit in Part 503, or (2) which EPA has determined will not threaten human health and the environment when used or disposed of in sewage sludge. The pollutants described in paragraphs (1)–(3) above include all those pollutants that EPA either specifically regulated in Part 503 or evaluated for regulation and determined would not adversely affect sludge use and disposal.

Consequently, in the case of a pollutant for which EPA did not perform a risk assessment in developing its Round One sewage sludge regulations, removal credit for pollutants will only be available when the Agency determines either a safe level for the pollutant in sewage sludge or that regulation of the pollutant is unnecessary to protect public health and the environment from the reasonably anticipated adverse effects of such a pollutant.[3]

EPA has concluded that a POTW discharge of a particular pollutant will not prevent sewage sludge use (or disposal) so long as the POTW is complying with EPA's part 503 regulations and so long as the POTW demonstrates that use or disposal of sewage sludge containing that pollutant will not adversely affect public health and environment. Thus, if the POTW meets these two conditions, a POTW may obtain removal credit authority for pollutants other than those specifically regulated in the part 503 regulations. What is necessary for a POTW to demonstrate that a pollutant will not adversely affect public health and the environment will depend on the particular pollutant, the use or disposal means employed by the POTW and the concentration of the pollutant in the sewage sludge. Thus, depending on the circumstances, this effort could vary from a complete 14-pathway risk assessment modeling exercise to a simple demonstration that available scientific data show that, at the levels observed in the sewage sludge, the pollutant at issue is not harmful. As part of its initiative to simplify and improve its regulations, at the present time, EPA is considering whether to propose changes to its pretreatment regulations so as to provide for case-by-case removal credit determinations by the POTWs' permitting authority.

EPA has already begun the process of evaluating several pollutants for adverse potential to human health and the environment when present in sewage sludge. In November 1995, pursuant to the terms of the consent decree in the *Gearhart* case, the Agency notified the United States District Court for the District of Oregon that, based on the information when available at that time, it intended to propose only two pollutants for regulation in the Round Two sewage sludge regulations dioxins/dibenzofurans (all monochloro to octochloro congeners) and polychlorinated biphenyls.

The Round Two sludge regulations are not scheduled for proposal until December 1999 and promulgation in December 2001. However, given the necessary factual showing, as detailed above, EPA could propose that removal credits should be authorized for identified pollutants before promulgation of the Round Two sewage sludge regulations. However, given the Agency's commitment to promulgation of effluent limitations and guidelines under court-supervised deadlines, it may not be possible to complete review of removal credit authorization requests by the time EPA must promulgate these guidelines and standards.

5. Relationship of Effluent Limitations to NPDES Permits and Monitoring Requirements

Effluent limitations act as a primary mechanism to control the discharges of pollutants to waters of the United States. These limitations are applied to individual facilities through NPDES permits issued by the EPA or authorized States under Section 402 of the Act.

The Agency has developed the limitations and standards for today's proposed rule to cover the discharge of pollutants for this industrial subcategory. In specific cases, the NPDES permitting authority may elect to establish technology-based permit limits for pollutants not covered by this proposed regulation. In addition, if State water quality standards or other provisions of State or Federal Law require limits on pollutants not covered by this regulation (or require more stringent limits on covered pollutants), the permitting authority must apply those limitations.

For determination of effluent limits where there are multiple categories and subcategories, the effluent guidelines are applied using a flow-weighted combination of the appropriate guideline for each category or subcategory. Where a facility treats an Industrial Waste Combustor waste stream and process wastewater from other industrial operations, the effluent guidelines would be applied by using a flow-weighted combination of the BPT/BAT/PSES limit for the Industrial Waste Combustors and the other industrial operations to derive the appropriate limitations. However, as stated above, if State water quality standards or other provisions of State or Federal law require limits on pollutants not covered by this regulation (or require more stringent limits on covered pollutants), the permitting authority must apply those limitations regardless of the limitation derived using the flow-weighted combinations.

Working in conjunction with the effluent limitations are the monitoring conditions set out in a NPDES permit. An integral part of the monitoring conditions is the point at which a facility must monitor to demonstrate compliance. The point at which a sample is collected can have a dramatic effect on the monitoring results for that facility. Therefore, it may be necessary to require internal monitoring points in order to assure compliance. Authority to address internal waste streams is provided in 40 CFR 122.44(i)(1)(iii) and 122.45(h). Permit writers may establish additional internal monitoring points to

[3] In the Round One sewage sludge regulation, EPA concluded, on the basis of risk assessments, that certain pollutants (*see* Appendix G to Part 403) did not pose an unreasonable risk to human health and the environment and did not require the establishment of sewage sludge pollutant limits. As discussed above, so long as the concentration of these pollutant in sewage sludge are lower than a prescribed level, removal credits are authorized for such pollutants.

the extent consistent with EPA's regulations.

Appendix 1—Definitions, Acronyms, and Abbreviations

Administrator—The Administrator of the U.S. Environmental Protection Agency.

Agency—The U.S. Environmental Protection Agency.

BAT—The best available technology economically achievable, as described in Sec. 304(b)(2) of the CWA.

BCT—The best conventional pollutant control technology, as described in Sec. 304(b)(4) of the CWA.

BOD_5—Biochemical oxygen demand, Five Day. A measure of biochemical decomposition of organic matter in a water sample. It is determined by measuring the dissolved oxygen consumed by microorganisms to oxidize the organic contaminants in a water sample under standard laboratory conditions of five days and 70 °C. BOD_5 is not related to the oxygen requirements in chemical combustion.

Boiler—An enclosed device using controlled flame combustion and having the following characteristics:

(1)(i) The unit must have physical provisions for recovering and exporting thermal energy in the form of steam, heated fluids, or heated gases; and

(ii) The unit's combustion chamber and primary energy recovery section(s) must be of integral design. To be of integral design, the combustion chamber and the primary energy recovery section(s) (such as waterwalls and superheaters) must be physically formed into one manufactured or assembled unit. A unit in which the combustion chamber and the primary energy recovery section(s) are joined only by ducts or connections carrying flue gas is not integrally designed; however, secondary energy recovery equipment (such as economizers or air preheaters) need not be physically formed into the same unit as the combustion chamber and the primary energy recovery section. The following units are not precluded from being boilers solely because they are not of integral design: process heaters (units that transfer energy directly to a process stream), and fluidized bed combustion units; and

(iii) While in operation, the unit must maintain a thermal energy recovery efficiency of at least 60 percent, calculated in terms of the recovered energy compared with the thermal value of the fuel; and

(iv) The unit must export and utilize at least 75 percent of the recovered energy, calculated on an annual basis. In this calculation, no credit shall be given for recovered heat used internally in the same unit. (Examples of internal use are the preheating of fuel or combustion air, and the driving of induced or forced draft fans or feedwater pumps); or

(2) The unit is one which the Regional Administrator has determined, on a case-by-case basis, to be a boiler, after considering the standards in Section 260.32.

BPT—The best practicable control technology currently available, as described in Sec. 304(b)(1) of the CWA.

Captive—Used to describe a facility that only accepts waste generated on site and/or by the owner operator at the facility.

Centralized waste treatment facility—Any facility that treats any hazardous or non-hazardous industrial wastes received from off-site by tanker truck, trailer/roll-off bins, drums, barge, pipeline, or other forms of shipment. A ''centralized waste treatment facility'' includes (1) a facility that treats waste received from off-site exclusively and (2) a facility that treats wastes generated on-site as well as waste received from off-site.

Clarification—A treatment designed to remove suspended materials from wastewater—typically by sedimentation.

Clean Water Act (CWA)—The Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C. 1251 et seq.), as amended, inter alia, by the Clean Water Act of 1977 (Public Law 95–217) and the Water Quality Act of 1987 (Public Law 100–4).

Closed—A facility or portion thereof that is currently not receiving or accepting wastes and has undergone final closure.

Combustion unit—A device for waste treatment which uses elevated temperatures as the primary means to change the chemical, physical, biological character or composition of the waste. Examples of combustion units are incinerators, fuel processors, boilers, industrial furnaces, and kilns.

Commercial facility—Facilities that accept waste from off-site for treatment from facilities not under the same ownership as their facility. Commercial operations are usually made available for a fee or other remuneration. Commercial waste treatment does not have to be the primary activity at a facility for an operation or unit to be considered ''commercial.''

Conventional pollutants—The pollutants identified in Sec. 304(a)(4) of the CWA and the regulations thereunder (biochemical oxygen demand (BOD_5), total suspended solids (TSS), oil and grease, fecal coliform, and pH).

Direct discharger—A facility that discharges or may discharge treated or untreated pollutants into waters of the United States.

Disposal—Intentional placement of waste or waste treatment residual into or on any land where the material will remain after closure. Waste or residual placed into any water is not defined as disposal, but as discharge.

EA—Economic Analysis

Effluent—Wastewater discharges.

Effluent limitation—Any restriction, including schedules of compliance, established by a State or the Administrator on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters, the waters of the contiguous zone, or the ocean. (CWA Sections 301(b) and 304(b).)

EPA—The U.S. Environmental Protection Agency.

Facility—A facility is all contiguous property owned, operated, leased or under the control of the same person. The contiguous property may be divided by public or private right-of-way.

Fuel Blending—The process of mixing organic waste for the purpose of generating a fuel for reuse.

Hazardous Waste—Any waste, including wastewaters defined as hazardous under RCRA, Toxic Substances Control Act (TSCA), or any state law.

Incinerator—means any enclosed device that:

(1) Uses controlled flame combustion and neither meets the criteria for classification as a boiler, sludge dryer, or carbon regeneration unit, nor is listed as an industrial furnace; or

(2) Meets the definition of infrared incinerator or plasma arc incinerator.

Indirect discharger—A facility that discharges or may discharge pollutants into a publicly-owned treatment works.

Industrial Furnace—means any of the following enclosed devices that are integral components of manufacturing processes and that use thermal treatment to accomplish recovery of materials or energy:

(1) Cement kilns
(2) Lime kilns
(3) Aggregate kilns
(4) Phosphate kilns
(5) Coke ovens
(6) Blast furnaces
(7) Smelting, melting and refining furnaces (including pyrometallurgical devices such as cupolas, reverberator furnaces, sintering machine, roasters, and foundry furnaces)
(8) Titanium dioxide chloride process oxidation reactors
(9) Methane reforming furnaces
(10) Pulping liquor recovery furnaces
(11) Combustion devices used in the recovery of sulfur values from spent sulfuric acid
(12) Halogen acid furnaces (HAFs) for the production of acid from halogenated hazardous waste generated by chemical production facilities where the furnace is located on the site of a chemical production facility, the acid product has a halogen acid content of at least 3 percent, the acid product is used in a manufacturing process, and except for hazardous waste burned as fuel, hazardous waste fed to the furnace has a minimum halogen content of 20 percent as generated.
(13) Such other devices as the Administrator may, after notice and comment, add to this list on the basis of one or more of the following factors:

(i) The design and use of the device primarily to accomplish recovery of material products;

(ii) The use of the device to burn or reduce raw materials to make a material product;

(iii) The use of the device to burn or reduce secondary materials as effective substitutes for raw materials, in processes using raw materials as principal feedstocks;

(iv) The use of the device to burn or reduce secondary materials as ingredients in an industrial process to make a material product;

(v) The use of the device in common industrial practice to produce a material product; and,

(vi) Other factors, as appropriate.

Industrial Waste—Hazardous or non-hazardous waste generated from industrial operation. This definition excludes refuse and infectious wastes.

Industrial Waste Combustor facility—Any thermal unit that burns any hazardous or non-hazardous industrial wastes received from off-site from facilities not under their same corporate structure or subject to the same ownership. This term includes the following: a facility that burns waste received from off-site exclusively as well as a facility that burns wastes generated on-site and waste received from off-site. Examples of a commercial industrial waste combustor facility include: rotary kiln incinerators, cement kilns, aggregate kilns, boilers, etc.

Industrial Waste Combustor wastewater—Water used in air pollution control systems of industrial waste combustion operations or water used to quench flue gas or slag generated as a result of industrial waste combustion operations.

Intracompany—A facility that treats, disposes, or recycles/recovers wastes generated by off-site facilities under the same corporate ownership. The facility may also treat on-site generated wastes. If any waste from other facilities not under the same corporate ownership is accepted for a fee or other remunerations, the facility is considered commercial.

LTA—Long-term average. For purposes of the effluent guidelines, average pollutant levels achieved over a period of time by a facility, subcategory, or technology option. LTAs were used in developing the limitations and standards in today's proposed regulation.

Minimum level—The level at which an analytical system gives recognizable signals and an acceptable calibration point.

Municipal Facility—A facility which is owned or operated by a municipal, county, or regional government.

New Source—''New source'' is defined at 40 CFR 122.2 and 122.29 for direct discharging facilities and at 40 CFR 403.3 for facilities discharging to a POTW.

Non-commercial facility—Facilities that accept waste from off-site for treatment only from facilities under the same ownership as their facility.

Non-conventional pollutants—Pollutants that are neither conventional pollutants nor priority pollutants listed at 40 CFR Part 401.

Non-detect value—A concentration-based measurement reported below the sample specific detection limit that can reliably be measured by the analytical method for the pollutant.

Non-hazardous waste—All waste not defined as hazardous under federal or state law.

Non-water quality environmental impact—An environmental impact of a control or treatment technology, other than to surface waters.

NPDES—The Natural Pollutant Discharge Elimination System authorized under Sec. 402 of the CWA. NPDES requires permits for discharge of pollutants from any point source into waters of the United States.

NSPS—New Source Performance Standards.

OCPSF—Organic Chemicals, Plastics, and Synthetic Fibers Manufacturing Effluent Guideline (40 CFR Part 414).

Off-Site—''Off-site'' means outside the boundaries of a facility.

On-site—''On-site'' means within the boundaries of a facility.

Outfall—The mouth of conduit drains and other conduits from which a facility effluent discharges into receiving waters or POTWs.

Point source category—A category of sources of water pollutants.

Pollutant (to water)—Dredged spoil, solid waste, incinerator residue, filter backwash sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, certain radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into water.

POTW or POTWs—Publicly-owned treatment works, as defined at 40 CFR 403.3(o).

Pretreatment standard—A regulation that establishes industrial wastewater effluent quality required for discharge to a POTW. (CWA Section 307(b).)

Priority pollutants—The pollutants designated by EPA as priority in 40 CFR Part 423 Appendix A.

Process wastewater—''Process wastewater'' is defined at 40 CFR 122.2.

PSES—Pretreatment standards for existing sources of indirect discharges, under Sec. 307(b) of the CWA.

PSNS—Pretreatment standards for new sources of indirect discharges, under Sec. 307(b) and (c) of the CWA.

RCRA—Resource Conventional and Recovery Act (Public Law 94–580) of 1976, as amended.

Residuals—The material remaining after a natural or technological process has taken place, e.g., the sludge remaining after initial wastewater treatment.

Sewage Sludge—Sludge generated by a sewage treatment plant or POTW.

SIC—Standard Industrial Classification (SIC). A numerical categorization system used by the U.S. Department of Commerce to catalogue economic activity. SIC codes refer to the products, or group of products, produced or distributed, or to services rendered by an operating establishment. SIC codes are used to group establishments by the economic activities in which they are engaged. SIC codes often denote a facility's primary, secondary, tertiary, etc. economic activities.

Sludge—The accumulated solids separated from liquids during processing.

Small business—Businesses with annual sales revenues less than $6 million. This is the Small Business Administration definition of small business for SIC code 4953, Refuse Systems (13 CFR Ch.I, § 121.601).

Solidification—The addition of agents to convert liquid or semi-liquid hazardous waste to a solid before burial to reduce the leaching of the waste material and the possible migration of the waste or its constituents from the facility. The process is usually accompanied by stabilization.

Solids—For the purpose of this notice, a waste that has a very low moisture content, is not free-flowing, and does not release free liquids. This definition deals with the physical state of the waste, not the RCRA definition.

Stabilization—A hazardous waste process that decreases the mobility of waste constituents by means other than solidification. Stabilization techniques include mixing the waste with sorbents such as fly ash to remove free liquids. For the purpose of this rule, chemical precipitation is not a technique for stabilization.

Treatment—Any activity designed to change the character or composition of any waste so as to prepare it for transportation, storage, or disposal; render it amenable for recycling or recovery; or reduce it in volume.

TSS—Total Suspended Solids. A measure of the amount of particulate matter that is suspended in a water sample. The measure is obtained by filtering a water sample of known volume. The particulate material retained on the filter is then dried and weighed.

Waste Receipt—Wastes received for treatment or recovery.

Wastewater treatment system—A facility, including contiguous land and structures, used to receive and treat wastewater. The discharge of a pollutant from such a facility is subject to regulation under the Clean Water Act.

Waters of the United States—See 40 CFR 122.2.

Zero discharge—No discharge of pollutants to waters of the United States or to a POTW. Also included in this definition are ''alternative'' discharge of pollutants by way of evaporation, deep-well injection, off-site transfer, and land application.

List of Subjects in 40 CFR Part 444

Environmental protection, Hazardous waste, Incineration, Waste treatment and disposal, Water pollution control.

Dated: November 26, 1997.

Carol M. Browner,

Administrator.

Accordingly, 40 CFR part 444 is proposed to be added to read as follows:

PART 444—WASTE COMBUSTORS POINT SOURCE CATEGORY

Subpart A—Industrial Waste Combustor Subcategory

General Provisions

Sec.

444.1 Definitions.
444.2 Scope of this part.
444.3 Monitoring requirements for the Industrial Waste Combustors.

Limitations and Standards for Existing Industrial Waste Combustor Facilities

444.10 Proposed effluent limitations for existing Industrial Waste Combustor facilities that discharge Industrial Waste Combustor wastewater to navigable waters.
444.11 Proposed pretreatment standards for existing Industrial Waste Combustor facilities that introduce Industrial Waste Combustor wastewater into a POTW.

Limitations and Standards for New Industrial Waste Combustor Facilities

444.20 Proposed effluent limitations for new Industrial Waste Combustor facilities that will discharge Industrial Waste Combustor wastewater directly into navigable waters.
444.21 Proposed pretreatment standards for new Industrial Waste Combustor facilities that will introduce Industrial Waste Combustor wastewater into a POTW.

Authority: 33 U.S.C. 1311, 1314, 1316, 1317, and 1361.

Subpart A—Industrial Waste Combustor Subcategory

General Provisions

§ 444.1 Definitions.

EPA's regulations in this part may use words and phrases that are unfamiliar to you. To help you understand its regulations in this part, EPA has defined some of these. You should look at 40 CFR parts 122 and 401 when reading the regulations in this part. In addition to the definitions in 40 CFR parts 122 and 401, the following definitions apply specifically to this part:

Conventional pollutants. Section 304 of the CWA requires EPA to identify conventional pollutants and how much effluent reduction may be obtained through use of best conventional control technology for categories of dischargers. EPA has identified the following as conventional pollutants: biochemical oxygen demand (BOD_5), total suspended solids (TSS), oil and grease, pH, and fecal coliform.

Facility means all contiguous property owned, operated, leased or under the control of the same person or entity. The contiguous property may be divided by public or private right-of-way.

Industrial waste means hazardous or non-hazardous waste generated from industrial operations. Refuse and infectious wastes are not industrial waste.

Industrial Waste Combustor facility means any thermal unit that burns any hazardous or non-hazardous industrial wastes received from off-site from facilities not under their same corporate structure or subject to the same ownership. This term includes the following: a facility that burns waste received from off-site exclusively as well as a facility that burns wastes generated on-site and waste received from off-site. Examples of a commercial industrial waste combustor facility include: rotary kiln incinerators, cement kilns, lime kilns, aggregate kilns, and boilers.

Industrial Waste Combustor wastewater means water used in air pollution control systems of industrial waste combustion operations or water used to quench flue gas or slag generated as a result of industrial waste combustion operations.

Non-conventional pollutants means pollutants that are neither conventional pollutants nor priority pollutants.

Off-site means outside the boundaries of a facility.

On-site means within the boundaries of a facility.

POTW. Publicly-owned treatment works as defined at 40 CFR 403.3(o).

Priority pollutants means the pollutants designated by EPA as priority in 40 CFR part 423, Appendix A.

You means the owner or operator of a commercial industrial waste combustor facility.

§ 444.2 Scope of this part.

(a) Subchapter N of title 40 of the Code of Federal Register contains EPA's CWA effluent guidelines and standards regulations. The provisions of this part apply only to the discharge of Industrial Waste Combustor wastewater. The discharge of other wastewater may be subject to other applicable provisions of this subchapter N.

(b) The provisions of this part apply to you if:

(1) You operate a commercial, Industrial Waste Combustor facility that receives industrial waste from off-site for burning; and

(2) You discharge Industrial Waste Combustor wastewater.

(c) The provisions of this part do not apply to you if you operate an Industrial Waste Combustor facility that only burns wastes that are generated exclusively on-site and/or burns wastes received exclusively from off-site from other facilities that are under the same corporate ownership.

§ 444.3 Monitoring requirements for the Industrial Waste Combustors.

You must monitor to demonstrate compliance with the limitations or standards. Here are your monitoring requirements: The ''monthly average'' regulatory values are the basis for the monthly average effluent limitations in direct discharge permits and pretreatment standards. You must comply with the monthly average discharge limit regardless of the number of samples you average.

Limitations and Standards for Existing Industrial Waste Combustor Facilities

§ 444.10 Proposed effluent limitations for existing Industrial Waste Combustor facilities that discharge Industrial Waste Combustor wastewater to navigable waters.

The provisions of this section apply to existing direct dischargers of Industrial Waste Combustor wastewater. If you discharge Industrial Waste Combustor wastewater, except as provided in 40 CFR 125.30 through 125.32, you must achieve the effluent limitations listed as follows:

(a) Effluent limitations attainable through the best practicable control technology currently available (BPT). The following table specifies the effluent limitations attainable through the best practicable control technology currently available (BPT):

BPT EFFLUENT LIMITATIONS (MG/L)

Pollutant or pollutant parameter	Maximum for any one day	Monthly average
Conventional Pollutants:		
TSS	24.3	7.46
pH	.....	(1)
Priority and Non-Conventional Pollutants:		
Arsenic	0.0166	0.0162
Cadmium	0.137	0.0493
Chromium	0.0205	0.013
Copper	0.0224	0.0131
Lead	0.0957	0.0606
Mercury	0.00409	0.00259
Silver	0.0102	0.00648
Titanium	0.0442	0.0159
Zinc	0.0532	0.0354

[1] Within the range 6.0 to 90. pH units.

(b) Effluent limitations attainable through the best conventional pollutant control technology (BCT). The BCT effluent limitations for the conventional pollutants, TSS and pH, are the same as those specified in the table in paragraph (a) of this section.

(c) Effluent limitations attainable through the best available technology economically achievable (BAT). The BAT effluent limitations are the same as those specified for BPT for the priority and non-conventional pollutants in the table in paragraph (a) of this section.

§ 444.11 Proposed pretreatment standards for existing Industrial Waste Combuster facilities that introduce Industrial Waste Combustor wastewater into a POTW.

The provisions of this section apply to any existing Industrial Waste Combustor facility that introduces Industrial Waste Combustor wastewater into a publicly-owned treatment works (POTW). Except as provided in 40 CFR 403.7 and 403.13, any existing Industrial Waste Combustor facility subject to this part must comply with 40 CFR part 403 and the following pretreatment standards for existing sources (PSES):

PRETREATMENT STANDARDS (MG/L)

Pollutant or pollutant parameter	Maximum for any one day	Monthly average
Priority and Non-Conventional Pollutants:		
Arsenic	0.0323	0.0172
Cadmium	0.484	0.160
Chromium	0.0203	0.013
Copper	0.0684	0.0322
Lead	0.0968	0.062
Mercury	0.00536	0.00343
Silver	0.0193	0.0123
Titanium	0.0131	0.00614
Zinc	0.248	0.159

Limitations and Standards for New Industrial Waste Combustor Facilities

§ 444.20 Proposed effluent limitations for new Industrial Waste Combustor facilities that will discharge Industrial Waste Combustor wastewater directly into navigable waters.

Any Industrial Waste Combustor facilities subject to this part that is a new source must comply with new source performance standards (NSPS). NSPS is the same as specified in the table in § 444.10(a).

§ 444.21 Proposed pretreatment standards for new Industrial Waste Combustor facilities that will introduce Industrial Waste Combustor Wastewater into a POTW .

The provisions of this section apply to any industrial Waste Combustor facility subject to this part that is a new source and introduces pollutants into a publicly-owned treatment works. Except as provided in 40 CFR 403.7, any new industrial Waste Combustor source must comply with 40 CFR part 403 and achieve the pretreatment standards for new sources (PSNS). PSNS is the same as specified in the table in § 444.11.

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